

AMERICAN UNIVERSITY OF BEIRUT

DIFFICULTIES ASSOCIATED WITH THE  
ADMINISTRATION OF SUBSTANTIAL/ PRACTICAL  
COMPLETION OF CONSTRUCTION WORKS

by  
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# ABSTRACT OF THE THESIS OF

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Title: Difficulties Associated with the Administration of Substantial/ Practical Completion of Construction Works

Substantial Completion, one of the major milestones along a construction project's timeline, can cause a lot of disputes and conflicting stances between the parties of a construction contract. The process of certifying substantial completion is not as easy and direct as it may sound. Several disputes related to delays, liquidated damages, and statute of limitation that usually arise through a construction project's timeline have a direct relation with the date of substantial completion. Parties in such cases usually fall into further disagreements regarding the date of substantial completion of the work. This is usually due to the poor administration of the substantial completion certification stage in the contract where no proper definition, certification process, or guidelines for certification are present. Thus, this research aims at helping parties of a contract properly administer the substantial completion stage in an attempt to reduce the different disputes that could arise out of debating such a date. To do so, a literature review along with case law and standard contract forms review was conducted. A framework for the proper administration of the substantial completion stage was produced. This framework includes a model substantial completion certification timeframe that embraces the best criteria and time baring of each step deduced from the different standard forms of contract studied. It also includes a list of guidelines, general and related to punch list formation, which shall give the parties an idea of the needed criteria to be known during the certification process, during the project's construction, and when building the contract. Moreover, the framework includes a checklist of several questions or information to be read and understood by the parties in conjunction with the guidelines and timeframe produced to strengthen their knowledge of the substantial completion stage. Thus, if the parties are able to follow such a framework, they might have a smoother certification process with a properly built and acceptable punch list that can reduce the different disputes which might arise from the poor administration of substantial completion or that rely on the accurate determination of the substantial completion date to be resolved.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Background

In any construction project executed, the relationship between the owner and the contractor is usually governed by a contract. The contractual relationship is initiated after the successful bidding contractor is chosen. The timeline of such a contract is characterized by three major milestones. The first milestone is when the contract is signed (contract formation), the second is when substantial completion (facility taking over) is achieved, and the third is when final completion (contract close out) is reached. In principal, each of these major milestones has its own importance and risks. However, substantial completion or practical completion has a major significance, as it defines the end of the construction stage and the beginning of the defects and liability period (Bailey, 2014). It is the date agreed on by the parties for construction to be complete, and at which the owner can occupy the facility (Coplan, 1993). Therefore, any delay beyond this date will withhold the owner from benefiting from the facility.

Gunduz et al. (2013) state that, a successful construction project is one completed on time, within budget, and according to quality required. However, delay in the construction industry is highly probable. This industry usually ignores delay analysis, or performs it subjectively by adding a contingency factor. Thus, they have a poor reputation for treating delays (Gunduz et al., 2013). Delay is additional time taken to complete a project, which is measured beyond the substantial completion date (Gunduz et al., 2013). So if substantial completion is not achieved on time, certain

revenue accounted for by the owner will be lost. As for the contractor, he may acquire higher overhead, material, and labor costs (Assaf and Al-Heji, 2006). Also, substantial completion may be a milestone beyond which a contractor's retainage is reduced, and/or the statute of limitation runs (Coplan, 1993). Another significance of this date is that it may free the architect from his duty of tracking the implementation of his design (Bailey, 2014). Further, it may allow the parties to commence arbitration if the contract prohibits them from commencing this act prior to substantial completion (Bailey, 2014).

Usually, the owner to protect himself and discourage delay by the contractor incorporates a liquidated damages clause in the contract (Thomas et al., 1995). Liquidated damages are based on a predefined monetary rate collected per day of delay beyond the agreed substantial completion date, and are paid by the contractor. Liquidated damages are enforced instead of recovering actual damages that are hard to prove (Rogers et al., 2019). One of the main legal requirements for recovering liquidated damages is that if the owner is responsible for the delay he has no right to recover them (Thomas et al., 1995). Therefore, it is important for the two parties to know when substantial completion has been achieved for the owner to stop levying liquidated damages, and for the parties to start performing any new responsibility assigned to them.

However, the notion of completion can be shaped differently in accordance with the type of project, and how it is conceptualized or described in the construction contract (Bailey, 2014). Thus, in order to assess when substantial completion is reached and avoid its risks and contradictions, an adequate contract administration mechanism for this processes' certification must be formulated. Otherwise, further delay might be incurred if parties fall into dispute regarding such a date (Gunduz et al., 2013; Assaf and

Al-Heji, 2006). With the increasing complexity of construction documents and conditions of contract, the possibility of such disputes, conflicting interpretations, and adversarial attitudes is increasing (Abdul Malak and El Saadi, 2000). Thus, primarily parties should clearly scrutinize the contract to determine any ambiguity regarding substantial completion or any other clause to avoid disputes at later stages (McConnell and Clevenger, 2018). According to McConnell and Clevenger (2018), the frequently disputed sections within the AIA A201-2017 article 9 relate to the certification of contractor applications, substantial completion, and the waiver of claims that are not reserved in writing upon receipt of final payment. Thus, a variation of disputes related to substantial completion certification may rise between the parties.

To avoid those disputes, parties should clearly be able to determine the criteria needed to achieve the substantial completion milestone when scrutinizing the contract. However, as stated, according to courts it's hard to determine what constitutes substantial completion, because it's dependent on each contract and project (Johnson and Smith, 2004). Different contract forms treat substantial completion uniquely in terms of its description and its certification timeline. Usually, an advantage of standard forms of contract is the familiarity of the parties with the contract obligations. However, there are still risks in such forms that could lead to economic and/ or time losses. Those risks should be properly understood and stated in their contractual context in order to be avoided (Youssef et al., 2018). Thus, having a streamlined contract administration of the substantial completion stage is important.

In general, there are certain steps to be followed before substantial completion is certified and after. These steps form the taking over timeline, and can differ between contractual forms in terms of their timing and their configuration. The substantial

completion certification timeline starts when a party notices that substantial completion is achieved and applies for certification. Next, the architect, engineer, or project manager certifies or rejects substantial completion after inspecting the work. If substantial completion is certified, the contractor submits a payment application, which is similar to the interim application. However, this application can include 50% of the retention money withheld from the contractor. Then, the responsible party certifies the acceptable payment amount, and the owner pays.

This timeline as straightforward as it may seem can be complicated by different criteria. One criteria is related to the stage at which the parties notice substantial completion is achieved. Contractual mechanisms can differ within this point. One mechanism can ask the contractor to notify (apply for certification) the architect, engineer, or owner when he considers work to have been substantially complete. However, a second mechanism may require from the architect, engineer, or owner to issue a certificate of substantial completion when they notice the contractor has reached this phase (Bailey, 2014). This second mechanism should be paired with a positive obligation from the responsible party to inspect the work closely, and to issue the certificate in a timely manner. On the other hand, the first mechanism should require from the contractor to issue its notice or request in a timely manner (Bailey, 2014). Thus, both mechanisms should be done in a timely manner, and exercised with objectivity from both sides. If the realization of substantial completion is not done in an objective manner, then the opposing party will dispute this realization (Bailey, 2014). Objectivity should be in terms of what the contractor has promised to deliver, and how the contract defines substantial completion (Bailey, 2014). This will help in determining what constitutes a minor defect that can still allow certification and facility operation,



and what constitutes a patent defect that renders certification and facility operation (Bailey, 2014). Moreover, the terms of a contract should also determine the form and content of the certificate of substantial completion. Such a certificate must at least include the date of when substantial completion has been achieved (Bailey, 2014). Paired with this certification should be the list of the minor defects yet to be adjusted, and the timeframe they should be modified in.

As stated, when substantial completion is reached and the property is occupied certain punch list items, minor defects, are yet to be completed, which means the project is not 100% complete (Bennett, 2007; Thomas, 2011). Punch list or snag list is a list of items not yet complete, or include discrepancies and repairs (Bennett, 2007). If a punch list is ample nobody wins, since to the contractor it means his work is found to be deficient, whereas to the architect it means his envisioned design quality is not reached (Boyle, 1993). Thus, it's unfortunate if only a single party produces the punch list and delivers it to the other. Parties need to work together to present the punch list in a practical and objective way (Boyle, 1993). Otherwise as Bailey (2014) states "experience suggests that construction contracts almost invariably give rise to disputes in their closing stages, frequently in relation to snagging."

Shrestha et al. (2018) noticed that punch list preparation is becoming a tedious activity due to the difficulty in reaching a common definition of substantial completion between the owner and contractor, whom have different interpretations. Usually, punch list items can encompass touch-ups of finishing works, delivery of as-built documentations, and any administrative deliverables. In other words any activity that does not prevent the owner from occupying the facility (Ellis, 2013). For example, if a building contract of a house requires the construction of a new porch. The house can be

certified as practically complete even if the porch is not complete, since the house can still be habitable without it (Bailey, 2014). However, punch list items shall not include any activities or deliverables that can impact the owner's full ability to occupy his facility. Thus, a facility that is structurally unstable, without adequate drainage, constructed with unsuitable material, and without service installations can never be considered substantially complete (Boyle, 1993; Ogalagu, 2012). Moreover, all safety systems must be installed and running prior to substantial completion (Rogers, 2019). For example, in *Uszok v. Henley Properties Pty Ltd*, the judge found that practical completion was not achieved due to structural unsoundness. The judge was able to confirm that the constructed slab was defective, since its piers were wrongfully placed, and it lacked adequate bearing. This meant that the defendant had all the right not to certify practical completion, and not to pay the plaintiff. Thus, it can be deduced that commissioning tests should be done prior to substantial completion to check the adequacy of the systems and materials in place [*Corbett Court Pty Ltd v. Quasar Construction Pty Ltd* (2008)].

Disputes related to what can be accepted in a punch list and what cannot are very common. However, such a dispute is not the only type of dispute related to substantial completion. Another type is seen when parties argue on how substantial completion is defined in the contract. In *Mariner International Hotels Ltd v. Atlas Ltd*, practical completion was condition precedent to a hotel purchase. Practical completion had to include the placement of furniture, fixtures, fittings, and decorations. The plaintiff and defendant each interpreted the definition of substantial completion differently. The plaintiff argued that practical completion is a state reached where no defects are present. However, the defendant claimed that it is a state reached when the

hotel can be operable even if works continue. Another definition related dispute can occur when the parties of the contract add or omit to the regular definition of substantial completion. In *Corbett Court Pty Ltd v. Quasar Construction Pty Ltd*, practical completion was additionally defined as the day of issuance of the occupation certificate. In this case, the occupation certificate of some work parts was issued prior to practical completion certification. Thus, the defendant was against the levying of liquidated damages by the plaintiff of specific parts, since their occupation certificate was issued prior to any delay. Another type of substantial completion dispute is related to the statute of limitations that time bars certain claims. This statute of limitation runs from the date of substantial completion of the works. Thus, if parties do not agree on this date, disputes will arise regarding the date that the statute of limitation ends [*Multiplex Construction Ltd v. Abi Group Contractors Ltd* (2004); also, *PIH Beaverton v. Super One* (2013); also, *Sunset Presbyterian Church v. Brockamp & Jagger* (2014)].

In general, the construction industry lacks the proper contract administration of the substantial completion stage. Thus, parties to a contract fall into different disputes associated with the date of substantial completion of the works. In order to avoid such disputes, protect the interests of the parties, and reduce the adversarial relationship that can rise, different aspects related to substantial completion must be studied to reach a streamlined contract administration of the substantial completion certification stage.

## **1.2 Problem Statement**

Substantial completion or practical completion is a milestone in the project timeline beyond which the owner can occupy the facility, and shall stop levying liquidated damages. The date to achieve substantial completion is usually agreed on

between the two parties signing the construction contract. The architect, engineer, or project manager certify substantial completion when it has been reached, and the parties agree on a punch list to be completed after. However, the process of certifying substantial completion and agreeing on a punch list is not as easy as it sounds, and its implications can be unexpected.

Having a poorly contractually administrated substantial completion certification process creates this problem. This poor administration can be due to an inadequate timeline for certification present in the contract. Moreover, it can rise from the unavailability of proper guidelines including criteria needed for certification that should mentor the parties through this process. Most importantly poor administration can be attributed to the lack of lessons that should have been learned when other entities fell into disputes regarding this stage.

Parties of the contract do not usually agree on a clear description of the substantial completion of works, or on acceptable items and criteria to be included in the punch list. Thus, at different stages conflicts may arise regarding whether substantial completion has been achieved, and at what time. Usually, an owner is too strict in certifying substantial completion to ensure better work quality has been reached, and to continue on levying liquidated damages with any delay incurred. However, a contractor prefers to apply for certification as soon as possible to reduce any delay and avoid paying liquidated damages. Thus, the main problem that has not been addressed yet is how to administer the substantial completion process properly to help the owner and contractor reach a common ground at the certification milestone and after. A proper administration that identifies the needed criteria for certification, and timely bounds the

certification process can help reduce disputes that may arise and any delays or losses that may be induced.

### **1.3 Research Objective**

This research will benefit from previous studies related to substantial completion, case laws regarding substantial completion, and different standard forms in order to come up with a streamlined contract administration for the substantial completion stage. To have a properly administered substantial completion certification process a framework must be produced. This framework will include a model timeframe for proper substantial completion certification. It will also include guidelines and checklists that clearly summarize any information needed to be understood by parties during the projects timeline and at the certification stage to properly achieve substantial completion. It may also set guidelines to help parties avoid disputes related to substantial completion at any stage they may arise in. The model timeframe for certifying the mentioned milestone shall be based on the conclusions deduced from performing a comparative analysis between timelines of substantial completion certification among different standard contract forms. Moreover, the guidelines and checklists will include the criteria to be followed by the parties when applying for or certifying substantial completion, and they will specify what is acceptable to include in the snag list, and what is not. Moreover, the criteria shall identify any steps or tests needed to be performed before applying for substantial completion. These information are to be determined from previous studies and actual case laws.

## 1.4 Methodology

The following steps are to be followed in this research:

1. Conduct a literature review regarding substantial completion in relation with its risks, the steps involved in its certification process, and the criteria to achieve it.
2. Examine different standard forms of contract to identify how these various forms describe this process and its administration. Moreover, see how the steps involved in substantial completion certification vary between these standard forms of contract. This will help in performing a comparative analysis among the different forms to infer a model timeframe for substantial completion certification.
3. Study different case laws that shed light on disputes related to substantial completion. Those case laws will be summarized and analyzed to deduce their relevance in debating the issue of substantial completion. Moreover, the case laws will help identify the circumstances, instances, or reasons where parties of a contract had disagreements regarding the date of substantial completion of the works.
4. Deduce from literature and case law review, and standard forms of contract the needed criteria to achieve substantial completion of a project. Those criteria could include any steps or tests to be carried prior to certification. Moreover, they could include the acceptable punch list items that would not render the facility inoperable, and the unacceptable items that would not allow the facility to be certified as substantially complete.
5. Generate from the conducted literature review, summarized case laws, and the studied standard forms of contract a framework including check list, guidelines,

and a model timeframe for a streamlined administration of the substantial completion certification stage.

6. Summarize the work and conclude, state recommendations and limitations of the proposed solutions, and suggest any future work.

### **1.5 Research Significance**

The improper contract administration of the substantial completion stage can lead to disputes between the involved parties of a contract regarding whether this stage has been actually achieved or not. This milestone is important in a project because it allows the owner to occupy the facility and it relieves the contractor from the burden of liquidated damages. Thus, the significance of this research will be in formulating a proper framework including a model timeframe, checklist and guidelines for a streamlined contract administration of the substantial completion process. Those timeframe, checklist, and guidelines will help reduce the disputes that may rise between the parties of a contract and which are directly related to the date of substantial completion of work. Particularly, this research will try to summarize key steps that shall be involved in the substantial completion certification timeline. These steps should be carefully studied and concluded to ensure a proper time barring and administration of the process. Moreover, it will guide the parties through ways to avoid disputes related to substantial completion by benefiting from the problems that others fell into with no proper administration at hand. It will set the needed criteria to achieve a satisfactory process including any required items, operations, or prerequisites needed prior to the owner occupying the facility.





## CHAPTER 2

### LITERATURE REVIEW

#### **2.1 Construction Contracts**

A construction contract, like any other type of contract, is a reflection of the purchaser's needs, owner in this case, while attempting to structure a healthy relationship between the parties (Ribeiro, 1996). In order to have a binding contract in place, six elements must be present. First, an offer must be made by the owner, which should be accepted within a specified time period by the other party. Moreover, the capacity of the parties to contract and the legality of the contract are two important criteria. Also, a legal relation should be in place for the transaction. In this transaction the contractor promises the construction of the project in return of a payment promise by the owner (Ribeiro, 1996). Having a written document is not a criteria for a binding construction contract, but it is important for administrative issues. A binding contract can be orally or electronically communicated, as having a written document is not a criteria for a binding contract. However, a written document is traditionally used in construction to clearly state the agreement terms and to prove that a legal relation has been actually initiated (Ribeiro, 1996).

#### ***2.1.1 Complexity of Construction Projects and Need for Standard Contracts***

With the increasing complexity, size, and cost of construction projects the formation of a clearly defined contract becomes critical (Abdul Nabi et al., 2020). This criticality is imposed by the high duration, need for commitment, and the possibility of

losses in large-scale projects (Branconi and Loch, 2003). A clearly defined construction contract is a comprehensible one that satisfies the interests of the parties (Ibss and Ashley, 1987). It should explicitly ensure and specify the rights, obligations, and risks of the parties. (Abdul Nabi et al., 2020). Moreover, the contract should outline the behavior of the parties along with the technical, financial and legal aspects of the project (Branconi and Loch, 2003). Thus, it is important to have an adequate type of a construction contract with defined general condition clauses to increase the probability of project success (Ibss and Ashley, 1987).

Construction contracts can be formed based on project specific ad hoc contracts, in-house drafted contracts by the companies, or standard form of contracts (Abdul Nabi et al., 2020). The usage of standard contract forms has been gaining momentum as more parties and projects are relying on them (Assaad and Abdul Malak, 2020). Hence, testing the effectiveness of such contracts is important (Assaad and Abdul Malak, 2020). Especially that contracts are usually drafted by an owner's entity and accepted by contractors (Ibss and Ashley, 1987). Thus, both parties should make sure that the other party's rights and their rights are not overpassed. In general, to the owner it is important to guarantee a completed project within time, budget and quality and to the contractor it is significant to ensure agreed payments of the work (Abdul Nabi et al., 2020).

### ***2.1.2 Contractual Relationship between Parties***

It should be noted that a contract does not only state the duties and entitlements of the parties within the agreed time-frame, cost, and quality. However, it also embarks on the management, staffing, and relations within the project (Alves, 2018). The

tailoring of a contract has a significant impact on the economic success of both parties, and it sets the grounds for the behavior of parties in moments of conflicts or moments of interests (Branconi and Loch, 2013). Thus, a well-defined and sculptured construction contract can significantly alter the relationship between the different parties on the project along all milestones encountered. It can have the ability to provoke joint interests that will help deliver a successful project (Alves, 2018).

Traditionally, in case of problems, the contract provides solutions for the affected party rather than allowing the parties to mutually think and mitigate the problem (Alves, 2018). This categorization of failure stems from the distant relations created between the parties by traditional project delivery methods where owners and contractors have conflicting goals and interests (Ibss and Ashley, 1987). In this traditional relationship each party thinks it is responsible for its own outcomes, and tries to protect its own interests rather than the projects interests (Alves, 2018). Thus, an important aspect that can help overcome such adversarial relationships between the parties is the careful generation of the contract and its terms (Ribeiro, 1996). Avoiding adversarial terms and conditions in contracts can increase the corporation between the parties by advising on mutual success factors (Ribeiro, 1996). Traditional Design Bid build contracts fail to state words or clauses related to corporation and collaboration, which helps strengthen adversarial relations. On the other hand, Integrated Project Delivery and Design Build contracts, which are far from traditional contract types, foster a range of clauses that empower collaboration and corporation. (Alves, 2018). Thus, this proves the power of words in contracts to help build the needed healthy relationships between different parties involved in the project.

### ***2.1.3 Importance of Wording and Clear Language in Construction Contracts***

As stated before, the wording of the contract plays an important role in determining the relation between the parties. The emphasis on words and their meanings in contracts is usually vital during legal conflicts and disputes encountered in the project (Ribeiro, 1996). An example of the importance of words comes into play in conflicts related to liquidated damages and whether “Time of the essence” words are stated in a contract making the liquidated damages clause enforceable (Ribeiro, 1996). Mainly courts base their interpretations on express contract language (Whitley, 2008). They usually enforce condition precedent criteria stated in contracts no matter how cruel its effect might be on a party. (Whitley, 2008). This makes it important for the parties to understand the condition precedents and their effects before signing the contract in an attempt to mitigate any harsh outcome (Whitley, 2008). On another note, words are also important in work scope definition clauses. As these clauses help describe the actual work to be completed, the quality required, the requirements for undergoing the job, and the drawings and specification of the work (Ibss and Ashley, 1987). All shall be stated clearly in these clauses to reduce major conflicts that may rise in later stages of the project.

Here some people argue that writing contracts with plain English language can help reduce problems related to the wording in contracts. Especially that contracts will be employed by managers and not legal professionals (Ribeiro, 1996). However, the use of plain English in contracts may lead to ambiguity. Legal and technical terms meanings have gained precision with time up to a point that different people including the parties and judges should infer from them the same definition (Ribeiro, 1996). Moreover, Alves (2018) argues that words can express feelings, relations, and precedence

depending on the context they were used in. Thus, words in a contract should be clearly chosen and placed to reduce any conflicts.

#### ***2.1.4 Standard Contracts Forms vs. Project Based Contracts***

A huge question comes up when deciding on a type of contract for any project. The question is whether the parties should use a standard form of contract or a project specific contract shall be construed (Ribeiro, 1996). With respect to standard contract forms their advantages as stated in the JCT (2009) are as follows: “

- Being a device for allocating contingent risk whilst saving time and assisting bargaining at arm ' s length;
- Being a device for avoiding writing terms for each transaction;
- Having the benefit of providing understanding by familiarity and experience in practice;
- Being less likely to protect the interests of only one party, having been negotiated by independent bodies representing all interests in an industry;
- Producing savings in transaction costs, avoiding the need to negotiate each contract;
- Removal of unwanted discretion from individuals, enabling a structured approach to negotiations;
- Enabling allocation of risk to be anticipated and provided for in calculations;
- Providing a familiar structure for payment, varying work, and dispute resolution;

- Enabling necessary quotations from others such as sub-contractors and suppliers to be obtained with greater accuracy.”

However, with the different advantages of standard contract forms comes disadvantages, such as the owner forcing his own interests in the contract, which may invoke the disapproval of using standard contract forms (JCT, 2009).

On the other hand, with respect to project based contracts, it may be more beneficial to use them on small projects to reduce costs and increase convenience. Reduction of costs will be due to the increased effectiveness of producing quotations, purchase orders, and confirmation documents through in-house built contracts (Ribeiro, 1996). Thus, the owner may get confused when choosing the contract type that would adequately fit his project and how each may affect its success (Ribeiro, 1996).

#### ***2.1.5 Problematic Construction Contract Clauses***

As stated before the wording in the work scope clause is of huge importance in a contract. Work scope clauses are found to be one of nine problematic clauses in construction projects according to respondents to a study conducted (Ibss and Ashley, 1987). Other clauses that have been also found to generate problems in contracts are definition terms, inspection and quality control, beneficial occupancy, completion of construction, and liquidated damages (Ibss and Ashley, 1987). With a range of critical clauses, the parties should make time to pick out and understand the different contract clauses while preparing a contract. A detailed understanding of the contract will benefit both parties and lead to a successful project (Ibss and Ashley, 1987).

### ***2.1.6 Recommendations for Construction Contract Preparation***

The projects accomplishment and the interaction between parties during execution and after is determined by the contract. For a project to succeed the agreement shall be impartial, practical, thorough and explicit (Branconi and Loch, 2003). These traits shall be present in the basic clauses or criteria in the contract, which are related to specifications, prices, payment, schedule, securities, warranties, liquidated damages, and liability limitations (Branconi and Loch, 2003). There shall also be clarity in the scope, deadline, client deliverables, and specifications (Branconi and Loch, 2003). In order to achieve the needed clarity, the contract formation process must take into consideration the views of the parties, their interests, and incentives to see how aligned or different these are and assess the deviations (Ibss and Ashley, 1987). Many authors have offered checklists and descriptions for proper contract formulation such as, listing documents that define the work scope, recognizing the adversarial relations, incorporating project objectives and recognizing troublesome clauses (Ibss and Ashley, 1987). Those checklists can ensure the presence of needed elements, but they have less effect on determining and identifying clearly the contract goals (Branconi and Loch, 2003).

## **2.2 Construction Projects Major Milestones**

Contract Formation is one of three major milestones in a construction contract timeline. The two other major milestones are Substantial Completion and Contract Close out.

### ***2.2.1 Contract Formation***

At the initial stage of this milestone no contract is yet in place. Parties may have conflicting criteria while preparing the contract. Contract negotiations might take place and the outcome of these negotiations might conclude the signing of the contract or dismissal. (Ribeiro, 1996). Until the terms and conditions of the contract have been negotiated and accepted by the parties, no contract will be in place (Ribeiro, 1996). Thus, this milestone is very important and it helps set the successful footsteps for upcoming milestones. As stated before, understanding and accepting the different clauses of a contract before signing will help reduce conflicts that may rise at later stages.

### ***2.2.2 Substantial Completion***

After the contract is formed and work is done the most important milestone comes to play, which is substantial or practical completion. Substantial completion must be achieved on a previously agreed date set in the contract (Scott, 1993). Substantial completion is usually achieved when the owner is able to occupy and use the facility. However, as stated by Frame (2012), it is hard to define substantial completion, instead it is easier for parties to realize the achievement of this stage. Still, most standard contract forms define substantial completion. On the other hand, as stated by Bronstein (1993), parties may sometimes define substantial completion on their own rather than depend on standard definitions. If substantial completion is not contractually defined it is regarded as the point where the facility is ready for its intended use (Dirik, 2006). However, when does one determine that a facility can be used? Well, this depends on the type of the facility and whether the owner is satisfied and can use it (Dirik, 2006).



Such a date is very important and shall be set forth and agreed to in a contract before execution (Laird, 2013). It is important because if substantial completion is not achieved on time certain revenue accounted for by the owner will be lost. As for the contractor, he may acquire higher overhead, material, and labor costs if this date is not met (Assaf and Al-Heji, 2006).

### ***2.2.3 Contract Close out***

After substantial completion has been achieved, a defects notification period runs from the date of substantial completion until an agreed duration elapses (FIDIC, 2017). Once the defects notification period ends, the contract close out starts. During this period the performance certificate and final payment must be given to the contractor and the site must be cleared (FIDIC, 2017). The achievement of this milestone marks the end of the contractual relation between the parties; however, the contractor remains liable to the owner for certain latent defects up until the end of the statute of limitation.

## **2.3 Substantial Completion Stage Significance and Requirements**

From the three previously identified milestones substantial completion has a major significance. The different events triggered by substantial completion achievement are what increase its significance. The events include the employer taking over the works, the seizure of levying liquidated damages by the owner, the initiation of the defects notification period, the payment of half the retention money, and the shifting of insurance responsibilities to the owner (Frame, 2012). In addition to the previously stated events, statutes of limitation for latent and patent defects and mechanic liens start to run from the date of substantial completion (Bronstein, 1993).

At the point of substantial completion, the project is still not 100% complete and certain punch list items are yet to be completed within a specified period. However, acceptable punch list items shall not preclude the owner from occupying the facility (Bennett, 2007). The facility shall be free from patent non-trifling defects that may not allow occupation (Frame, 2012). Minor defects may be present when substantial completion is certified because the complexity of construction projects, site conditions, and the number of involved entities make it unfeasible to have a flawless facility (Frame, 2012).

It is important to note that with such a major milestone comes a lot of disputes and problems between the owner and contractor, as the parties may have conflicting interests in the determination of the substantial completion date. To solve such conflicts, the definition of substantial completion in a contract alone does not help much, nor does the generation of a substantial completion certificate preclude judges from further assessing the facts and criteria at hand (Abdul Nabi et al., 2020). Courts take into consideration the different facts and realities unique to the project at hand along with the definitions in the contract to place their determination (Frame, 2012). The facts usually include the progress of works and the type of snag items remaining (Frame, 2012). Courts also make sure that the different condition precedents to substantial completion certification stated in contracts have been achieved. Moreover, courts make sure that the purpose of the contract is not defeated through any deviation. On the other hand, the occupation and/ or ceasing of work is highly considered by courts when determining substantial completion achievement (Bronstein, 1993). Thus, it is still very important to reach a mutual understanding of practical completion and its prerequisites

in the contract by the two parties to avoid any hustle that can be generated at such a stage (Abdul Nabi et al., 2020).

#### **2.4 Substantial Completion Definition in Standard Contract Forms**

Accurately defining substantial completion is very important so that this milestone can be achieved with the least conflicts possible (Crewdson, 2004). Certain standard forms define substantial completion as the point in time where the owner can occupy the facility and benefit from it after construction of the facility has been done (Abdul Nabi et al., 2020). Other standard forms avoid defining substantial completion due to the burdensome of finding a proper and encompassing definition (Frame, 2012). Moreover, all standard forms allow substantial completion certification for part of the works that can be used for its intended purpose (Abdul Nabi et al., 2020).

Following are examples of different definitions used in a range of standard forms. As stated by Abdul Nabi et al. (2020), “In particular, Consensus Docs states that the work, or a designated portion, is substantially complete whenever the owner can occupy it without causing unscheduled disruptions for the design-builder.” The JCT (2009) design- build and standard building contracts allow practical completion certification when the Architect/ Contract Administrator determine that practical completion has been achieved and the contractor has submitted the design documents and complied with health and safety provisions (Frame, 2012). The Design and Construct Infrastructure Conditions of Contract certifies substantial completion when this milestone is achieved and the contractor has passed the final tests and notified the owner (Frame, 2012). On the other hand, according to Frame (2012), the NEC contract

has a more detailed definition, which states that the project manager decides the date of completion when the following is achieved by the contractor: “

- The different work stated in the works information has been completed.
- Remedied defects already found and that may preclude occupation by owner.
- All work needed for occupation has been completed, if the works information does not identify the work to be performed.”

Another example is the definition included in the AIA which states that substantial completion is determined by contractor when the facility can be used by the owner for its intended use, and when he has complied with the contract documents (Dirik, 2006). Finally, the FIDIC states that the taking over certificate can be issued when all work required in the contract to be completed has been completed, and tests have been passed with an exception for minor defects that don't deny the owner the benefit of his facility (Frame, 2012).

In general, it is very important to clearly define beneficial occupancy and thoroughly provide information for the contractor so he can realize substantial completion (Dirik, 2006). Thus, one can suggest to keep the definition blank in the contract and allow project managers or architects to fill this blank. This can be done in an attempt to avoid any dispute or conflict that may arise between the parties when certifying substantial completion (Crewdson, 2004).

## **2.5 Substantial Completion and Substantial Performance**

### ***2.5.1 Substantial Performance Doctrine***

Parties in a contractual agreement have different obligations to one another. One obligation of the contractor is to perform his work up to the standards or quality required and within the time provided. In return the owner has an obligation to pay the contractor for the work performed. Thus, if contractor does not substantially perform the work, he will be in breach of contract and the owner has the right not to pay (Kadi, 1995). In order to determine if the contractor is in breach or has substantially performed, different criteria must be studied. The criteria should determine if the contractor has performed in good faith and is able to remedy defects. They should also determine if the owner is denied from certain interests, and if he can be reimbursed for these interests (Kadi, 1995). Therefore, as stated by Kadi (1995), “minor breaches representing slight departures from the contract terms may indicate the breaching party has substantially performed. Significant departures, representing material breaches, will preclude a finding of *substantial* performance.”

### ***2.5.2 Difference between Substantial Performance and Substantial Completion***

As stated by Kadi (1995), the doctrine of substantial performance ceases the levying of liquidated damages when substantial completion has been achieved. Substantial Completion is a milestone through which the owner stops levying liquidated damages, and the contractor receives a large part of its payment. However, substantial performance doctrine is used to ensure payment to the contractor even if the contractor has slightly deviated. The doctrine saves the contractor from non-payment by the owner

if the contractor fails to fully complete his work, but has still in good faith performed its work (Dirik, 2006).

Therefore, substantial performance is related to whether or not the project is incoherence with the standards and qualities needed without any major defects that could diminish the value or the purpose of the facility and lead to termination (Kadi, 1995). However, substantial completion is a milestone through which enough percentage of work has been done that allows the occupation of the facility while serving its intended use. Most importantly substantial completion cannot be achieved unless the contract has been substantially performed (Kadi, 1995). Courts have found that standardizing an acceptable percentage of remaining work to achieve substantial completion is not adequate. As a project may be 99% complete, but the 1% remaining does not allow the owner to enjoy the beneficial occupancy of the facility (Kadi, 1995).

### ***2.5.3 Beneficial Occupancy***

As stated, beneficial occupancy or serving the intended purpose is an important criteria to determine substantial completion and substantial performance. The actual occupation of the facility does not conclude beneficial occupancy, instead thorough determination of what should have been actually achieved by the contract determines beneficial occupancy (Kadi, 1995). A lot of criteria come into play when determining if the owner can utilize the facility or not. The criteria can be such as safety considerations, certain notifications and inspections, and many more (Kadi, 1995). Some owners can be stricter in determining the point at which they can benefit from the facility. An owner might require that no punch list item disrupt him while occupying. Thus, he might limit the acceptable items to exterior finishes (Crewdson, 2014). A

certificate of occupancy can sometimes be irrelevant in proving substantial completion. This makes sense in hotel construction where it's not acceptable to have punch list items fixed inside rooms occupied by guests (Crewdson, 2014). Thus, the term beneficial occupancy and the point at which the owner can benefit from the facility varies between different project types.

## **2.6 Defects in Construction Projects**

As stated before a beneficial occupancy or taking over certificate can be issued when the work is completed for the owner to occupy the facility less any punch list items (DiMatteo, 2000). Acceptable snagging items can include any minor defects that are not patent, and any item that doesn't preclude the owner from putting the facility to its intended use (DiMatteo, 2000). So are all defects related to substantial completion and do all of them cause delay or not?

### ***2.6.1 Minor, Latent, and Patent Defects***

Well, the concept of defects and delays can intertwined. A defect can cause delay, but at the same time defects may not cause delays (Ribeiro, 1996). A defect may cause delay if at inspection for taking over it becomes apparent. However, not all defects detected at inspection before taking over can cause delay and failure of substantial completion. If the defect is minor and can be adjusted within a short period of time, it won't cause any delay for handing over. On the other hand, if the defect is patent and doesn't allow the owner the benefit of the facility, the owner can decline the certification of the facility and delay the work (Ribeiro, 1996). Another defect can cause

delay if it was detected through completion tests or before, and its remedy requires a long period of time (Ribeiro, 1996).

In general, there are few defects that may not cause delay once detected. These defects can be ones that become apparent during a regular inspection of the work and are easy and fast to remedy. Moreover, they can be ones realized at the inspection for certification, but are acceptable or minor in nature and can be remedied while the owner is occupying (Ribeiro, 1996). These defects will be included in punch lists. Another type are latent defects that become apparent after or during the defects notification period while the facility is being occupied (Chong, 2005). Minor defects realized before certification can be either remedied by the contractor or waived by the owner in return of payment deductions. A well-established construction contract that clearly defines substantial completion and the acceptance of having snag list items after certification, will allow for such remedies (Ribeiro, 1996). As stated by FIDIC (2017), “If the Works, or a Section, fail to pass the Tests on Completion repeated under Sub-Clause 9.3 [*Retesting*], the Engineer shall be entitled to:

(a) Order further repetition of Tests on Completion under Sub-Clause 9.3 [*Retesting*];

(b) Reject the Works if the effect of the failure is to deprive the Employer of substantially the whole benefit of the Works in which event the Employer shall have the same remedies as are provided in sub-paragraph (d) of Sub-Clause 11.4 [*Failure to Remedy Defects*];

(c) Reject the Section if the effect of the failure is that the Section cannot be used for its intended purpose(s) under the Contract, in which event the Employer



shall have the same remedy as is provided in sub-paragraph (c) of Sub-Clause 11.4 [*Failure to Remedy Defects*]; or

(d) Issue a Taking-Over Certificate, if the Employer so requests.”

Latent defects detected during occupancy and after certification can either be remedied during the defects notification period if it's still running or can be handled by warranties (Ribeiro, 1996). There is a difficulty in accounting for latent defects by contractors, since construction inspection is limited to the construction phase. Thus, there is a difference between the quality detected while constructing and the quality perceived by the occupants (Chong, 2005). Here comes the importance of the defects notification period and warranties. It should be noted that as stated in the EJCDC (2013) standard contract form, “None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. Observations by Engineer;
2. Recommendation by Engineer or payment by Owner of any progress or final payment;
3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
4. Use or occupancy of the Work or any part thereof by Owner;
5. Any review and approval of a Shop Drawing or Sample submittal;
6. The issuance of a notice of acceptability by Engineer;
7. Any inspection, test, or approval by others; or
8. Any correction of defective Work by Owner.”

### ***2.6.2 Defects Notification Period***

The defects notification period or defects correction period is a period of around 12 month that starts running from the date of substantial completion (EJCDC, 2013). This period may be shorter such as 6 or 9 months according to what has been decided in the contract (JCT, 2009). The period of correction depends on the type of facility and processes to be tested during occupation (JCT, 2009). Defects during this period include any damages and malfunctions noticed during occupation. Defective work shall be adjusted on the cost of the contractor promptly (EJCDC, 2013).

According to EJCDC (2013), “In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.” Moreover FIDIC (2017) clearly states that a defects notification period or a part of it can be extended when, “

(a) if and to the extent that the Works, Section, Part or a major item of Plant (as the case may be, and after taking over) cannot be used for the intended purpose(s) by reason of a defect or damage which is attributable to any of the matters under sub-paragraphs (a) to (d) of Sub-Clause 11.2 [*Cost of Remedying Defects*]; and

(b) subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*]. However, a DNP shall not be extended by more than a period of two years after the expiry of the DNP stated in the Contract Data. If delivery and/or erection of Plant and/or Materials was suspended under Sub-Clause 8.9 [*Employer’s Suspension*] (other than where the cause of such suspension is the responsibility of the Contractor) or Sub-Clause 16.1

[*Suspension by Contractor*], the Contractor’s obligations under this Clause shall not

apply to any defects or damage occurring more than two years after the DNP for the Works, of which the Plant and/or Materials form part, would otherwise have expired.”

However, is this extension applicable in the different standard contract forms or only in the FIDIC? And is the concept of defects notification period similar in all standard forms? Well, according to Consensus Docs (2017), “With respect to any portion of work first performed after substantial completion, the one year correction period shall commence when that portion of the Work is substantially complete. Correction periods shall not be extended by corrective work performed”. Thus, this shows that different standard forms may treat the defects and notification period differently.

## **2.7 Delays in Construction Projects**

### ***2.7.1 Possibility of Delays***

Time, cost, and quality are the usual criteria used to determine the degree of success of any project (Catalao et al., 2020). Usually, overruns whether schedule or cost overruns are highly probable in the construction industry (Gunduz et al., 2013). Different familiar project internal factors cause delay (Walker, 1994). Delays are frequent in construction due to the lack, or inadequacy of delay analysis. Contingency factors are added instead of undergoing deep measures that prevent delays (Gunduz et al., 2013). Different studies detected the percentage of delays in construction projects from different countries. In Clark County, from a survey of 84 projects that have a duration of more than one year, on average the projects are usually delayed by a percentage of 22% from their completion date (Keizur et al., 2020). Moreover, in Indonesia, 38% of projects under study were found to have experienced schedule

overruns (Gunduz et al., 2013). A study was also conducted in Florida where a 17% delay average was found in different highway projects (Keizur et al., 2020).

### ***2.7.2 Definition of Delay***

Delay is additional time taken to complete the project from the agreed date of completion, known as the date of substantial completion (Assaf and Al Hejji, 2006). Thus, the project will not be completed within the agreed duration (Gunduz et al., 2013). Instead an extension of schedule will be needed (Assaf and Al Hejji, 2006). Hamzah et al. (2011) and Shehu et al. (2014) define time overruns as, “time overruns extends to any delay in the completion of a project, or any other additional period of time during construction beyond the contracted completion date.”

### ***2.7.3 Effects of Delay***

Delay is one of many major problems faced in the construction industry (Assaf and Al Hejji, 2006). A lot of undesired impacts result from delay, which affect construction significantly (Catalao et al., 2020). Keeping the project running on time is usually a common goal shared by the owner and contractor, since time overrun will provoke additional costs and lost revenues for both parties. (Thomas et al., 1995). The inability of the owner to benefit from his facility either due to the lack of production, or the inability to rent it will cause him a loss of revenue (Assaf and Al Hejji, 2006). However, the longer utilization of labor and management will induce larger overhead costs, more material cost, and higher labor cost to the contractor (Assaf and Al Hejji, 2006). In addition to the additional costs and lost revenues incurred from delay, it can

have some economic impacts. Frustration and lack of benefit by the public are some economic impacts of delay in governmental projects (Catalao et al., 2020).

#### ***2.7.4 Causes of Delay and Prevention Measures***

It is important to know what criteria might cause delays in an attempt to prevent it. According to Assaf and El Hejji (2006), a lot of delay causes can be project related. This means that certain project factors can cause delay, such as project complexity and the improper definition of substantial completion (Gunduz et al., 2013; Assaf and Al-Hejji, 2006). The definition of substantial completion is usually stated in contracts. Thus, it is important to scrutinize the different contract terms as hard as this may be. Doing so will help reduce different disputes and their impacts that may arise out of contracts, and not only the ones related to delays (McConnell and Clevenger, 2018).

Liquidated damages clauses are remedy clauses incorporated in contracts by the owner to discourage delay by contractors. As stated before, the levying of liquidated damages seizes upon substantial completion, which increases the importance of such a date readily (Thomas et al., 1995). However, why act retroactively to reduce delays instead of being proactive in dealing with them? It has been determined that the imperfect collaboration between the parties involved in a construction contract is the main cause of delay (Catalao et al., 2021). Thus, it might be important to study and improve governance project factors, such as project organization, coordination of parties, contractual relations, and collaboration between parties in an attempt to reduce delays proactively (Catalao et al., 2021).

In addition to the liquidated damages clause, the owner can use the contract termination option in case the contractor was not able to proceed genuinely with the work. The termination clause is usually a last remedy followed by the owner due to its inevitable consequences. A notice must be served to the contractor as a condition precedent to the termination clause (Ribeiro, 1996).

## **2.8 Liquidated Damages**

A while ago, litigation was the main practice followed by owners to levy damages incurred from delays by contractors (Assad and Abdul Malak, 2020). However, with time, the stipulation of delay damages clauses in contracts became the most used mean for recovering delay damages from the contractor (Assad and Abdul Malak, 2020). Liquidated damages clauses were introduced to contracts to overcome the tiring method of calculating actual damages (Assaad and Abdul Malak, 2020). Liquidated damages sets a pre-agreed to monetary value to be deducted from the contract in case of delay beyond substantial completion (Assaad an Abdul Malak, 2020). In addition to the ease in calculating delay damages provided by a liquidated damages clause, they may also act as a warning for contractors in an attempt to reduce delays. A contractor may be tempted to accelerate in case he was delayed in an attempt to shy away from money losses attributed to the levying of liquidated damages (Ribeiro, 1996).

Liquidated damages clauses are favored in a lot of contracts due to several reasons. Mainly such clauses are induced into contracts by parties desiring to reduce the number of claims and disputes that may arise from the contract (DiMatteo, 2000). However, such a clause alone might be a reason of dispute at a certain stage of the

projects timeline. As stated by Assaad and Abdul Malak (2020), claims and disputes may surface between parties on the basis of untimely or unjustifiable levying of liquidated damages by the owner. Another reason for utilizing a liquidated damages clause is that it may encourage the contractor to perform in a timely manner (DiMatteo, 2000).

The reasoning behind liquidated damages is to reimburse the owner of the revenue lost due to the delay he experiences from not utilizing the facility (Scott, 1993). The losses and additional costs suffered by the owner are usually hard to quantify and may be non-relatable directly to the delay (Assaad and Abdul Malak, 2020). However, levying liquidated damages doesn't not require the owner to prove the actual amount of losses, instead the agreed to amount of delay damages is deducted (Powell-Smith, 1993). Thus, most importantly, the use of liquidated damages clauses in contracts is to overcome the difficulty in assessing actual losses (Powell-Smith, 1993).

However, it should be noted that any delay induced by the owner or due to force majeure cannot be compensated for by the owner, so liquidated damages cannot be assessed. The contract gives the right of time extensions to the projects substantial completion date and may reimburse the contractor for the losses he encounters (Scott, 1993). The contractor's delay expenses are related to additional labor, field, and office costs (Assaad and Abdul Malak, 2020).

### ***2.8.1 Drafting a Liquidated Damages Clause***

A well-structured liquidated damages clause is one that ensures a reasonable reimbursement of delay damages to the owner without acting as a penalty to the contractor (Ribeiro, 1996). Thus, the terms of this clause shall be well negotiated and

understood by the parties to ensure its fairness and enforcement (Ribeiro, 1996). It may be difficult to determine what amount of liquidated damages would be just for both parties (Hammond, 1981). It should be well known that the word liquidated means the calming of the scale of delay damages to a mutually acknowledged quantifiable amount (Ribeiro, 1996). Therefore, a usual sum of liquidated damages is likely to be less than the sum of actual damages (Powell-Smith, 1993). Having a well-established amount is very important for both parties. A very high liquidated damages amount relative to actual damages would intimidate bidders or provoke them to increase their contingency (Hammond, 1981). On the other hand, lowering liquidated damages may have a counter effect with no intimidation from delay by the contractor (Hammond, 1981).

Liquidated damages clauses negotiations can vary from one contract to another (Ribeiro, 1996). Liquidated damages can be set as a monetary sum, or as a percentage of contract value to be levied on daily or weekly basis of delay (Ribeiro, 1996). For example, as stated in the JCT (2009) standard contract form, “Also, there is a tendency amongst those drafting liquidated damages entries in JCT contracts, to refer to a sum ‘ per week or part thereof ’ , presumably to ensure that damages apply from the beginning of delay, and do not apply only to complete weeks. It may be that the anticipated loss for a day is the same as for a week, but there is a risk that it is not, and could be construed as unconscionably high. Some contracts avoid the risk by specifying an amount per day. It is not unknown for a Contractor to accept a high level of liquidated damages on the presumption that he can, at a later date, challenge it, but it is a high risk strategy.”

Certain criteria of liquidated damages clauses should be well known by the parties. The first criteria is that an owner can continue levying liquidated damages no



matter how long the delay may be, unless a maximum amount has been stated in the contract (Ribeiro, 1996). For example, the FIDIC (2017) standard form, usually sets a limit on liquidated damages to 10% of contract price. Another criteria is that liquidated damages are claimed based on the exact conditions stated in the contract. Certain contract may only allow deductions from final payments, others will ensure that Liquidated damages can be levied from interim payments and can be sued for by the owner (Ribeiro, 1996).

### ***2.8.2 Challenging the Liquidated Damages Clause***

Due to the customary use of liquidated damages provisions in contract, criticizing their adequacy may be a healthy act (DiMatteo, 2000). Two opposing views exist, one with penalties and against liquidated damages, and another with liquidated damages and against penalties. In favor of the first view, DiMatteo (2000) states that, “Professors Goetz and Scott formed their critique in favor of the enforcement of penalty clauses. They used a model of the *most efficient insurer* to argue that the performing party to the contract is the best insurer. A penalty clause is the insurance policy for which the other party is willing to pay a premium. In the alternative, when a penalty clause is not included, the non-breaching party will be forced to take inefficient precautions (such as third-party insurance) in order to insure against breach. It would be more efficient to enforce the penalty clause than to force the parties to take other precautions or use other remedies.”

However, in favor of the second school, as stated by DiMatteo (2000), “Other scholars have argued that the current law is efficient as currently constituted. In short, they claim that penalties are inefficient because they deter efficient breach. Clarkson,

Miller, and Muris have argued that the non-enforcement of penalty clauses is indeed an efficient rule of contract law. Their primary argument is that penalty clauses, if enforced, produce an incentive for the non-performing party to induce a breach by the performing party. In short, the penalty clause provides opportunism for the non-breaching party.”

### ***2.8.3 Enforceability of Liquidated Damages Clause***

A huge dilemma might be induced once a liquidated damages clause is enforced. The problem becomes whether the clause is just and enforceable or whether it acts as a penalty and is not enforceable (DiMatteo, 2000). Common law detests penalties and declines the enforcement of unreasonable liquidated damages sums (DiMatteo, 2000). The common law has set a rule that the quantity and rate of damages to be levied shall be fair enough to compensate the losses of the owner, but not large enough to be treated as a penalty for the contractor (Ribeiro, 1996). The JCT (2009) standard form states that a liquidated damages clause can be disputed once enforced in an attempt to prove that they can be construed as a penalty. Thus this standard form of contract clearly states that, “The Employer (or his team) must avoid the temptation to treat the liquidated damages entry as a means of encouraging the Contractor to meet deadlines. An amount appearing to be a threat may be construed as a penalty, and face challenge when attempts are made to enforce it.”

In contracts having the word liquidated damages stipulated alone does not prove its genuine effect. However, the parties should make sure not to use the word penalty in contracts because this might be used against its enforceability (Ribeiro, 1996). So what proves that a liquidated damages clause is enforceable and doesn't act

as a penalty? Well, a quantity higher than the actual damages is not automatically treated as a penalty. It becomes unenforceable and is treated as a penalty if the variation between the anticipated damages and actual damages is significant (JCT, 2009). Parties to a contract usually agree on the sum of liquidated damages to be stated before the contract is signed and the project is undertaken (Ribeiro, 1996). According to the JCT (2009) standard form the process of determining the reasonable amount of liquidated damages is risky where this amount must not be greater than highest loss to be incurred.

The agreement to a mutually accepted and reasonable damages amount does not preclude the parties from contesting this amount at later stages (Ribeiro, 1996). Disputes regarding the reasonableness of liquidated damages arise because sometimes the value of actual encountered damages turns out to be less than the anticipated amount. The problem is that the true test of reasonableness of the amount anticipated is whether this amount did not act as a penalty at the time of contract formation and not at the time it is to be levied (Ribeiro, 1996).

A solution that may help avoid the problems associated with enforceability and high damage amounts might be the fragmentation of liquidated damages amounts by contractors to each subcontract (Read and Williams, 2004). It was found that in most court decisions that construed the liquidated damages clause as a penalty, they based their decisions on technicalities and not on the unreasonableness of the amount (Powell-Smith, 1993). Moreover, the failure of liquidated damages unenforceability was justified by the lack of adequate time extension measures or by the prevention of time extensions for justified delays (Powell-Smith, 1993). This may render time to be at large, which allows the contractor to finish his work within a reasonable time (Read and Williams, 2004). Therefore, it is paramount that liquidated damages clauses be well

instructed and understood by parties in an attempt to decrease claims and disputes that arise from delay damages.

## **2.9 Adversarial Relations and Substantial Completion**

The construction industry is characterized by its disintegration, troubling and miscellaneous nature, and the inconsistent functioning of its trades (El-Sayegh and El-adawy, 2021). Conflicts of interests arise readily in construction projects due to the involvement of parties with competing goals, contrasting prospects and distinct proficiencies (Ayhan et al., 2021). This troubling relationship is built due to the absence of collaboration and the deficiency in anticipated roles (El-Sayegh and El-adawy, 2021).

In a perfect project scenario, collective decisions must be taken by the parties of a contract. In order for the parties' decisions to be in harmony, thorough and clear sharing of information and data shall be accomplished between the different project stakeholders (El-Sayegh and El-adawy, 2021). However, what actually happens on the project is quite different. Competitiveness and adversarial relationships between the parties of a contract and/ or between parties involved are usual results of a construction project. This type of relationship evolves with the cumbersome nature of a construction project, which involves a continuously evolving information tradeoff and variations (El-Sayegh and El-adawy, 2021).

An adversarial or a guarded adversarial relationship usually present in a traditional construction project puts the interest of each party upfront, and demolishes any trust to be built in such a relation in an attempt to protect the interests of each party alone (Drexler and Larson, 2000). A formal contract is usually chosen to govern the relationship, responsibilities, and duties of each party (Drexler and Larson, 2000).

However, an adversarial relationship might form which precludes proper communication and evolves into improper construction mechanisms and distresses in finding mutual solutions (El-Sayegh and El-adaway, 2000). This has led to the presence of a high percentage of claims and disputes in the construction industry.

### ***2.9.1 Claims and Disputes in Construction Projects***

The construction industry is highly susceptible to clashes between the different parties (Ayhan et al., 2021). The complexity and size of construction projects make them prone to a high level of uncertain conditions which will probably cause different clashes (Ayhan et al., 2021). Although the construction sector is detrimental in the economic development of any country, it is a sector well known for its poor performance (Yeo and Ning, 2006). The project performance is hindered by schedule and budget overruns, unanticipated quality, and a high number of claims and disputes (Yeo and Ning, 2006). Moreover, according to Ayhan et al. (2021), construction claims and disputes are very crucial, since they may result in further delay, increased costs, decreased performance, and further hostility between the parties. Thus, in an attempt to reduce construction claims and disputes and their effects, researchers have attempted to study the different risks and uncertainties encountered in projects, variable outcomes of projects, tasks disintegrations, and relations in a construction project (Yeo and Ning, 2006).

Claims and disputes form an increasing trend in the construction industry all around the world (Ayhan et al., 2021). According to Ayhan et al (2021), the following trends have been seen around the world, “

- According to annual reports of the Hong Kong International Arbitration Centre (HKIAC), the average rate of construction disputes was 20.2% among all HKIAC registered cases between 2015 and 2017 (HKIAC 2018).
- The American Arbitration Association (AAA) reported that the number of construction cases submitted to the AAA in 2017 was up by 4%, which involved a 13% increase in claims higher than USD 1 million (AAA 2018).
- Awwad et al. (2016) stated that the growth of the construction industry in the Middle East is accompanied by an increasing number of construction disputes, and a growing number of arbitration cases are being witnessed.
- The study by Parikh et al. (2019) revealed that the National Highways Authority of India (NHAI) is struggling with more than 1,000 construction disputes amounting to over INR 1 billion, and meanwhile, the occurrence of claims and disputes are on the rise among over 200 contracts under implementation.
- Ustuner and Tas (2019) drew attention to huge numbers of disputed cases submitted to resolution organizations. In their study, it is reported that the Judicial Arbitration and Mediation Services (JAMS), which is among the largest dispute resolution organizations in the world, handles approximately 15,000 cases annually, and the Centre for Effective Dispute Resolution (CEDR), which is a UK based organization, handles approximately 30,000 disputes annually.”

Although claims and disputes are highly common and their effects are severe and known, yet no clear method to overcome them equitably has been developed (Ayhan et al., 2021). According to Read and Williams (2004), it is important to study different contract terms or contract law positions to understand how each party understands and enforces them. Thus, one way to overcome different disputes effects is to avoid them through prediction of conflicts based on the contractual clauses and contractual interest understandings (Ayhan et al., 2021). In general, contractors may claim for additional time and/ or money for variations or force majeure, and both parties may claim for the failure of another party to perform any one of its duties (Read and Williams, 2004). Disputes usually involve conflicts related to time, money, quality, or to any breach in contract terms. Thus, parties should be aware of their different contractual rights and duties and should understand the stance of the other parties in an attempt to avoid claims and disputes.

### ***2.9.2 Owners and Contractors Interests in a Construction Project***

Adversarial relations and conflicts are mostly common in design bid build, also known as traditional, contracts. In such a contract, the owner has separate contractual agreements with each of the contractor and design consultant. Thus, there is no direct contractual relationship between the contractor and designer (Fu et al., 2013). This leads to an increase in the disagreements between the owner, contractor, and designer, which affects the performance of a project (Fu et al., 2013). A conflict is defined as a common trait in organizational behaviors that can include differing objectives, discrepancies in dealing with work, and unrealistic behavioral expectations (Fu et al., 2013). According to Fu et al. (2013), uncertainty and organizational conflicts are the major areas that give

rise to disputes in construction. Improper work definition, exclusions or slip-ups in designer documents, improper communication, uncertainty, conflicting goals, and impractical prospects are the main reasons for the conflicting relation (Fu et al., 2013). As stated by Shapiro (2005), “In DBB projects, owners and contractors are constantly at odds regarding design versus construction failures, and the relative responsibility of each party for the failure of a design or a construction component to result in a facility which either meets the owner’s functional or budgetary requirements or which is fit for the very purpose intended by the owner.”

Moreover, according to Drexler and Larson (2020), contractors usually conceal project facts from the owner and his personnel, object variation orders, and search for contract loopholes. Contractors try their best to hold on tight to the contract and their entitlements in it due to the low margin of profit allowed and reliance on contingency factors (Read and Williams, 2004). On the other side, the owner excessively controls the progress of work, withholds certain approvals or certifications required for the contractor, and negotiates payments to ensure contractor compliance. These actions of self-interest practiced by both parties tend to cause claims between them, which could induce losses and delays, and the need for dispute resolution (Drexler and Larson, 2000). Moreover, the claims data representations are usually done by low level on site staff, but their escalation oblige the involvement of high level management. Thus, the information may be directed subjectively in relation with each party which may increase the rift further (Read and Williams, 2004).

An example of adversarial reactions to a certain situation by the owner and contractor would be at the level of substantial completion certification. As stated by Gill (2019), “The building contractor employed by the landlord wants to achieve practical



completion quickly to avoid damages for late completion. In addition, building contracts often allow the employer (landlord) to retain 5% of the value of the works during the course of construction, and typically half of that is released to the contractor on practical completion. The contractor is motivated to call for practical completion with a snagging list: items to be settled shortly after practical completion.” Thus, the owner may tend to withhold practical completion certification when it should be rightfully certified. Or the contractor may tend to accelerate his request for certification in an attempt to relief himself from certain duties.

In general, it is important here to understand if modern delivery methods could eliminate such conflicts. Well, disagreements between the different parties are unavoidable in construction projects that experience a lot of difficulty and involvements (Fu et al., 2013). However, modernized delivery methods can reduce disputes or can find solutions to treat them with less effects on project performance. Moreover, according to Fu et al. (2013), the total elimination of disagreements in a project can deter the healthy and needed sharing of conflicting ideas and creativity. Therefore, advanced construction methods that emphasize collaboration, cooperation, and adequate communication shall be followed to overcome the problematic consequences of adversarial relationships (El-Sayegh and El-adaway, 2000).

### ***2.9.3 Relationships and Innovative Project Approaches***

Innovative construction approaches have been developed in an attempt to catchup with the evolvments taking place in the construction industry. Such evolvments have included larger project sizes, higher funding, more advanced procurement needs, and a higher utilization of technological advancements (El-Sayegh

and El-adawy, 2021). Those approaches do not only help the construction industry stay in line with the advancements its witnessing, but they also try to ensure that the owner-contractor relationship evolves adequately for proper project execution. According to El-Sayegh and El-adawy (2021), those approaches include, “collaboration, integrated project delivery, alliancing, and partnering.” So how do these innovative approaches affect the contractual relationship in a project? And what is the importance of having a well-established relationship?

According to Drexler and Larson (2000), the relationship between the owner and contractor significantly affects the success of the project. One of the pillars for a successful relationship is partnering. Moreover, collaborative planning was found to improve a projects performance through the participation and incorporation of several parties in the planning and scheduling of the project. Collaborative planning attempts to ensure that all parties feel mutually involved in the project and have their objectives aligned in the sake of the project (El-Sayegh and El-adawy, 2021).

This proves the importance of trust and integration of the different project entities in all project delivery methods to reduce the number of disputes that may arise in a project (Brancone and Loch, 2003). A successful project requires the different parties to understand their liabilities properly and let go of their self-interests (Brancone and Loch, 2003).

#### ***2.9.4 Risk Allocation Strategy***

Proper risk allocation between the different involved project entities is very important to achieve successful project outcomes. Many risks are involved in any construction project, which shall be allocated to the parties most able to handle them

and their impacts (Ibbs and Ashley, 1987). Risk allocation varies significantly between different project delivery methods. For example, in turn key fixed price contracts, all project risks are allocated to one contractor with less involvement of outer parties and more performance of overlapping tasks (Branconi and Loch, 2003). However, in cost-reimbursable contracts, the owner holds the risk of reimbursement while the contractor acts less efficiently in procuring and building (Branconi and Loch, 2003). On the other hand, an intermediate contract between fixed price and cost reimbursable which sets a target price or a ceiling can remove some risks from the owner and reallocate them to the contractor (Branconi and Loch, 2003).

Thus, contractual agreements should set properly the different goals and capabilities of the owner, contractor and engineer to avoid destructive adversarial relations that rise from favorable contract language (Ibbs and Ashley, 1987). These goals should properly align risks, accountabilities, duty, and jurisdiction between the different parties involved including the engineer or architect who acts as an owner's representative in some contracts (Hammond, 1981).

#### ***2.9.5 Engineers or Certifiers Duty***

The engineer, or in some cases architect or project manager, is usually the representative of the owner in a project to ensure proper execution by contractor (Ribeiro, 1996). One should suppose that the representative is well aware of the contract terms and his powers within it with enough understanding in construction law to lead the owner in the needed direction (JCT, 2009). Although the engineer is an owner's representative and should exercise skill and care towards the employer, but he should also act in competently fairly in different decisions to be made (Ribeiro, 1996). This is

clearly stated in the JCT (2009) standard contract form, “Clause 1.2.1 of SFA provides that, in the provision of the services he was engaged to deliver, ‘the architect shall exercise reasonable skill and care in conformity with the normal standards of the architect’s profession’. Where there is no such express term in the particular contract of engagement, it will be implied unless there is express provision to the contrary. Even where there is exclusion of the duty of skill and care, it will almost certainly be struck down by the Unfair Contract Terms Act 1977.”

As stated in the JCT (2009), “In the performance of his duties, the architect wears two hats but not both at the same time.” The engineer, owner’s representative, or architect should act impartially in decisions related to change proposals, work acceptance or rejection, or any decision to be taken in the contract. The engineer shall make his decision, interpretation, proceeding, or judgment keeping in mind that he is not liable in his decision to any party involved (EJCDC, 2013). If the engineer neglects such duties the contractor cannot sue the owner for breach of contract (JCT, 2009). The AIA (2017) standard form also sheds light on this impartiality or fairness, “Interpretation and decisions of the architect will be consistent with the intent of, and reasonably inferable from, the contract documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both owner and contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.” However, the engineer is to act as an owner’s agent while performing other duties such as design, approval of drawings, and approval of material (Ribeiro, 1996). Thus, any negligence in performing these duties may allow the contractor to put the employer in default (JCT, 2009). The JCT (2009) standard form

further elaborates on this matter, “This duality was described by Lord Reid in *Sutcliffe v. Thackrah* in these terms: It has often been said, I think rightly, that the architect has two different types of function to perform. In many matters he is bound to act on his client’s instructions, whether he agrees with them or not; but in many other matters requiring professional skills he must form and act on his own opinion. Many matters may arise in the course of the execution of a building contract where a decision has to be made which will affect the amount of money which the contractor gets... The building owner and the contractor make their contract on the understanding that in all such matters the architect will act in a fair and unbiased manner, and it must therefore be implicit in the owner’s contract with the architect that he shall not only exercise due care and skill but also reach such decisions fairly, holding the balance between his client and the contractor.” Although the engineer is to act impartially between the owner and contractor in certain decisions, he has only a contractual relationship with the owner and not with the contractor (Ribeiro, 1996). Thus, clear contract language is necessary to help the engineer act impartially while being an owner’s representative in order to decrease any disputes that may arise regarding this duality.

A major task or duty to be determined by the engineer is whether substantial completion has been achieved or not. As stated before the certification of substantial completion is a major milestone where the work is seen to have reached a level of completion where the owner can utilize the facility with only a few punch items remaining to be completed. Moreover, at this milestone, the owner will stop levying liquidated damages, part of the retention money is to be released back to the contractor, and the statute of limitation will start running (Coplan, 1993).

## 2.10 Punch List

When substantial completion is certified and the project is ready to be utilized by the owner, certain minor items or defects can still be present which are known as punch items (Bailey, 2014). The defects present are to be very minor in nature with no patent defects present otherwise the facility cannot be put for its intended use (Bailey, 2014). According to Ellis (2013), “Exactly what work needs to be done prior to substantial completion and which does not? In the clear-minded climate of a project’s design and specification phase, I would expect the latter list to be significantly shorter than the former. Simply listing the things that may be completed post-substantial completion would then leave everything else as a prerequisite for substantial completion.”

A punch list, also called a snagging list is a list of unfinished, or slightly defective items that can be completed or repaired within a short period of time and do not preclude the owner from occupying the facility (Sherstha et al., 2018). According to Bailey (2014), “Throughout the construction industry, it is hard to think of a term with more negative connotations than "punch list". If a punch list- the tally of defects found in a newly completed project- is extensive, then nobody wins.” When designers see punch list they might think that their design was not executed up to the quality required. Moreover, when owners realize snagging items they think that the project will be delayed and they will encounter losses in revenue. However, to a contractor, a punch list can have a connotation that their work is deficient which will make them encounter additional costs (Boyle, 1993). So how and who prepares punch lists?

First, the contractor prepares a punch list based on what its own personnel and subcontractors determine when inspecting the work (Sherstha et al., 2018). Each

subcontractor may prepare a punch list based on his work items, but the main contractor must compile those lists into one encompassing punch list to be presented to the owner and his representative (Sherstha et al., 2018). The owner and his representative will inspect the work and make sure that the snagging items represented by the contractor are inclusive of all minor defects (Sherstha et al., 2018). If some of the defective items are not minor in nature then the owner will not certify substantial completion. Moreover, as stated by Sherstha et al. (2018), “Numbering and dating each item and dating each version of the list are essential to maintaining an accurate record of the process of correcting deficiencies.” It may be important that owners representatives whether engineers or architects be able to present the punch list in a suitable and effective way (Boyle, 1993). Other criteria might also be needed for proper and effective punch list determination process.

A lot of conflicts and problems are usually encountered in the construction process and one of the problems encountered is the acceptability of punch list items by the different parties. Each party might have its own view on punch list preparation due to the absence of trust and collaboration between the parties (Sherstha et al., 2018). According to Boyle (1993), parties should work together in generating a punch list to avoid the conflicts and adversarial attitudes that might rise at this step, since with proper coordination and explanation parties will understand each other better. No party should have the right to generate a punch list and impose it on the other party to complete it (Boyle, 1993). Thus, certain criteria shall be accepted by both parties in formulating a punch list.

Parameters that determine the suitability to occupy a facility based on regulations and codes should be used when developing a punch list. According to

Ogalagu (2012), “The parameters include structural and dimensional stability, durability, and freedom from damp, adequate drainage, service installations such as electrical, mechanical, sanitary fitments and waste disposal installations.” Moreover, acceptable items can include, minor touch ups or certain replacements of broken down items (Bennett, 2007). According to Ellis (2013), other acceptable items can be, “Post-substantial completion activities could include cosmetic touch-ups of finishes; delivery of as-built documentation; seasonal performance testing; and other administrative activities/deliverables that do no impact the ability of the building and its systems to support the owner’s full occupancy and operational requirements.” Other examples of different acceptable or non-acceptable punch list items are as follows:

- According to Thomas et al. (1995), “The electrical, plumbing, heating, air conditioning, and carpentry work had not been finished. In addition, the floors, kitchen appliances, and cabinets had not been installed. The court ruled that since Miller could not comfortably live in the unfinished structure, the work was not substantially complete and Keating was not entitled to the total contract amount less allowances for the uncompleted work.”
- Also according to Thomas et al. (1995), the sanitization of a water line for a pharmaceutical plant project is necessary for substantial completion.
- According to Bailey (2014), “Thus, if a contract to build a house requires a new porch to be constructed over the front door, the house could be certified as practically complete even if the porch were not constructed, but the house was otherwise complete and habitable.”



- Moreover, according to Bailey (2014), an adequate part of the dwelling system shall be complete to achieve practical completion.

Thus, a lot of criteria comes into play when determining the acceptability of punch list items and the ability to certify substantial completion or not.

## **2.11 Retention Money**

Retention money is the percentage of money retained by the employer from each interim certificate payable to the contractor. According to FIDIC (2017), ““Retention Money” means the accumulated retention moneys which the Employer retains under Sub-Clause 14.3 [Application for Interim Payment] and pays under Sub-Clause 14.9 [Release of Retention Money]. Thus, part of the retention money becomes payable, is released, upon substantial completion.”

Money is usually retained from the contractor, since it may be used by the owner later to fix any defects if the contractor fails to do so. It is usually 10% of the gross value of the work done, but a different percentage can be stated in the contract that governs the project. The percentage of money retained can be reduced as the project proceeds if the contractor demonstrates good quality and workmanship. Moreover, according to FIDIC (2017), “However, when certifying any release of Retention Money under Sub-Clause 14.6 [Issue of IPC], if any work remains to be executed under Clause 11 [Defects after Taking Over], the Engineer shall be entitled to withhold certification of the estimated cost of this work until it has been executed.” Thus, retention money is a very important remedy used by the owner to ensure compliance by contractor.

As stated before a percentage of the retention money is released upon substantial completion, which makes such a date highly anticipated by the contractor.

Different contract standard forms state that half of the retention money is to be released upon substantial completion, examples are below:

- According to JCT (2009), “Only half of the full retention applicable to work in the Relevant Part is to be deducted in valuations for Interim Certificates after the Relevant Date (Clause 4.20.2) (i.e. half the retention already deducted is released to the Contractor).”
- According to Consensus Docs (2017), “Upon owners written acceptance of the certificate of substantial completion, owner shall pay the constructor the remaining retainage held by the owner for the work described in the certificate of substantial completion, less a sum equal to 150% of the estimated cost of completing or correcting remaining items on that part of the work. Owner shall pay constructor monthly the amount retained unfinished items as each item is completed.”
- And, according to FIDIC (2017), “After the issue of the Taking-Over Certificate for: (a) the Works, the Contractor shall include the first half of the Retention Money in a Statement; or (b) for a Section, the Contractor shall include the relevant percentage of the first half of the Retention Money in a Statement.”

## **2.12 Statute of Limitation**

As stated before the date of substantial completion acts as a trigger to the running of the statute of limitation. Statutes of limitation are based upon the idea that a contractor is not to be liable indefinitely for his work (Ribeiro, 1996). Especially that upon a certain time limit all projects are subject to wear and tear due to the normal use

of the facility. According to Day and Angello (1996), “As mentioned earlier, a statute of limitations requires that a person (plaintiff) file the lawsuit within a certain period of time after a triggering date, or the lawsuit will be barred.” Unlike the time limits of warranties which are set in the contract, the time limits for liability are usually stipulated legally by statute (Ribeiro, 1996). Thus, statutes of limitation shall be comprehended by contractors to determine the limit of time to which they will remain liable for their work. Once the statute of limitation runs out, the contractor can no longer be held liable for any defects noticed (Day and Angello, 1996). A question or a debate may arise here between owners and contractors on whether the statute of limitation are desirable or not?

An owner might refuse limits put on liabilities in an attempt to always hold the contractor liable for his work. However, little does an owner know that with no limits on liability, the prices of the contractor will increase and they will shy away from risky projects (Ribeiro, 1996). On the other hand, the awards and/ or profit resulting from a project is to be collected by an owner. Thus, a contractor will not accept unlimited liability for a project no longer generating any profit for him (Ribeiro, 1996). In general, whatever the stance is of either party on the acceptability of statutes of limitation, statute are usually enforced within different laws present.

For example, in the California state law which is similar to other states, two statutes of limitation are provided. According to the Cal Code, “Code of Civil Procedure section 337.1, enacted in 1967, requires that an action for damages due to patent defects in an improvement to real property be filed within four years from substantial completion of the improvement. Code of Civil Procedure section 337.15, enacted in 1971, requires that an action for damages due to latent defects be filed within

ten years from substantial completion of the improvement.” Regarding the latent defects statute of limitation, the liability of any entity who was responsible for any task in the construction of a facility is limited to 10 years from the date of substantial completion of the facility. Moreover, no action against a latent defect may be taken more than 3 years from discovering the defect. According to the California Code, “CCP § 338, limits the bringing of such an action to three years after discovery of the defect; the statutes, read together, limit the total time available for bringing such an action to 10 years, the statutes are mutually exclusive and the action must be filed within the shorter of the 2 periods.” The 10 year statute of limitation is not only limited to latent defects in the different work performed, but also includes the injury to the facility or it’s personal due to the defect (Bender, 2020). Moreover, according to the California Code, “The 10-year period specified in subdivision (a) shall commence upon substantial completion of the improvement, but not later than the date of one of the following, whichever first occurs:

- (1)The date of final inspection by the applicable public agency.
- (2)The date of recordation of a valid notice of completion.
- (3)The date of use or occupation of the improvement.
- (4)One year after termination or cessation of work on the improvement.”

As stated the statute of limitation starts running from the date of substantial completion, but the determination of such a date may be sometimes challenging. Although the dates and duties set in a substantial completion certificate are legally binding (Abdul Nabi et al., 2020), but such a certificate and date might not be finalized. Thus, the notices of completion and the certification by the architect are not the only ways to determine the date from when the statute will run, so courts will in some cases

interpret the problems in hand one by one to determine the actual date of substantial completion (Bender, 2020).

Different important aspects are to be considered when discussing statute of limitation. The first aspect of the latent defects statute of limitations is that cross-complaints for indemnity are to be considered issued timely, no matter when issued, only if the initial complaint for defects was issued within the stated liability limit (Bender, 2020). Another aspect related to the lengthy, 10 year, latent defects statute of limitation is that its duration cannot be tolled if a third party is employed to repair the defects, nor can it be estopped by the attempted actions or words of the contractor to repair the defects (Bender, 2020).

Another limitation period that starts running from the substantial completion date is the ability to file a mechanics' lien claim (Bronstein, 1993). As stated by Bronstein (1993), "Each claimant other than an original contractor, in order to enforce a lien, must record his claim of lien after he has ceased furnishing labor, services, equipment, or materials, and before the expiration of (a) 90 days after completion of the work of improvement if no notice of completion or cessation has been recorded, or (b) 30 days after recordation of a notice of completion or notice of cessation." However, the difference between mechanics' lien claims and latent defects claims is that state laws explicitly express that statute of limitations start running from substantial completion, but they only state the word completion when talking about mechanics' lien claims (Bronstein, 1993). So does completion also mean substantial completion or not? According to Bronstein (1993), "'Completion' means, in the case of any work of improvement other than a public work, actual completion of the work of improvement. Any of the following shall be deemed equivalent to a completion:

- (a) The occupation or use of a work of improvement by the owner, or his agent, accompanied by cessation of labor thereon.
- (b) The acceptance by the owner, or his agent, of the work of improvement.
- (c) After the commencement of a work of improvement, a cessation of labor thereon for a continuous period of 60 days, or a cessation of labor thereon for a continuous period of 30 days or more if the owner files for record a notice of cessation.”

Thus, considering such equivalences of completion, one might infer that mechanics' liens claims time limits are related to the date of substantial completion also. Here the problem becomes how the parties use the date of substantial completion to convey their own interests. A contractor may tend to claim that completion of the facility is later than the actual date to ensure he stays within the limits of recording a mechanics' lien (Bronstein, 1993). Such an action can also be adopted by an owner that claims a further date of substantial completion to ensure that the statute of limitation is still running. Thus, a lot of disputes may rise between the parties regarding the date of substantial completion for the purposes of limitation periods. Therefore, it becomes up to courts to decide the date of substantial completion, and the ability to enforce the limitation period or not.

### **2.13 Disputes and Substantial Completion**

It was found that one major reason for disputes in the construction industry is the poor contract administration performed by the parties which emphasizes the importance of contract understanding by the parties involved (Arcadis, 2018). Poor contract administration might arise from the increasing complexity of contract

conditions, which will lead to incompatible understandings between the parties (Thomas, 2000). Thus, different claims and disputes will rise from different conflicts in determining certain contract clauses. According to Thomas (2000), such claims and disputes include, but are not limited to, “defective specifications, increase in scope of work, disagreement as to what constitutes a substantial completion, site instructions, and enforceability of liquidated damages, among others.”

Substantial completion was also identified as a contractual subject of dispute by Connell and Clevenger (2018) whom state that, “When the Architect determines that the Owner can occupy the work for its intended purpose, per § 9.8.4, the Architect shall prepare a certificate of substantial completion that lists that date upon which the work was substantially complete. This date is often the subject of dispute due to delay and warranty issues because the trigger for warranties is typically the date of substantial completion.” Moreover, it was found that disputes mostly occur in the closing stage of a construction project due to snagging items and substantial completion (Bailey, 2014). According to Crewdson (2004), disputes related to substantial completion arise due to the non-clear language defining substantial completion in a contract. Although the concept and the term of substantial completion is well known in the construction industry, yet disputes still arise regarding what constitutes substantial completion, and if it should be certified or not.

To be noted, that it is very important to have proper contractual guidelines for the adequate certification of substantial completion, and to have identified criteria or precedents for certification to decrease the conflicts arising at this stage (Abdul Nabi et al., 2020). Those conflicts are not only related to substantial completion and snagging, but also include liquidated damages, breach of contract, and payment obligation

conflicts (Thomas, 2011). According to Assaad and Abdul Malak (2020), “providing contractual instructions on LD provisions is of pertinent importance for the construction industry as well as for practitioners.” The provisions for levying liquidated damages are directly related to the substantial completion certification date. Moreover, disputes that can arise out of payments due at substantial completion are usually related to unpaid retainage (Abdul Nabi et al., 2020). Thus, the date of substantial completion can cause a large number of conflicts between the parties of the contract and at certain instances will be determined in courts.

In general, a certain date or a number of calendar days is set in the contract as a date where completion shall be achieved by contractor (Thomas et al., 1995). Different disputes may arise regarding the date of achieving substantial completion which include liquidated damages, other damages, payment of retained money, and running of statute of limitations (Crewdson, 2004). Thus, in deciding such cases, the courts should usually rely on the definition of substantial completion to determine when it was achieved (Crewdson, 2004). This definition is similar in most contracts and it states that substantial completion is achieved when the owner can utilize the facility for its intended purposes. However, according to Thomas (1994), definitions in contracts are rarely direct enough and do not require further interpretations to be made, which can make them rigid environments for dispute cultivation. Thus, according to Thomas (1994), “Where this situation arises, courts will examine all possible meanings of the word(s) or phrase(s) in question, including trade meanings, custom, and associated words.”

Thus, aside from the definition in contracts, courts shall also might make their realizations based on the following questions according to Thomas et al. (1995), “



- How extensive is the claimed defect or incomplete work?
- To what degree was the purpose of the contract defeated?
- How easy is the defect to correct?
- Has the owner benefitted from the work performed?”

However, judges should keep in mind that different views can be sought out of such questions. Therefore, a good judge is one that considers all questions to be related and deduces the most amicable results. The judgement shall also be based on the proofs given by the different parties as each party has a burden of proofing his stance. The owner will need to prove that the contractor did not complete his work on time, but instead he completed the work on a later date (Kadi, 1995). However, the contractor will need to prove the date by which he completed the work and the owner was able to utilize the facility, and if he faced any excusable delays or not (Kadi, 1995). Thus, a lot is to be considered by courts if disputes arise between the parties regarding the date of substantial completion.

#### **2.14 Importance of Streamlined Contract Administration of Substantial Completion Stage**

Success in the construction industry is determined by the different performance factors related to time, budget, and quality (Gunduz et al., 2013). Due to poorly performed delay risk analysis, which is usually concluded by adding contingency factors (Gunduz et al., 2013), the idea of encountering delays can be inevitable. Delay is the additional time taken by the contractor to complete his work and is measured from the date of substantial completion (Gunduz et al., 2013).

A lot of importance is given to the date of substantial completion due to its significant impact. According to Coplan (1993), when the contractor achieves

substantial completion, part of his retainage will be released and his statute of limitation will start running. Moreover, at this date the architect will no longer hold the duty of tracking the construction of his design (Bailey, 2014). However, when substantial completion is not achieved on time, revenue to be collected by the owner from utilizing the facility will be lost, and further costs related to overhead, material, and labor will be encountered by the contractor (Assaf and Al-Heji, 2006). With such importance governing the substantial completion certification a lot of disputes and conflicting interpretations rise at this stage. Especially that with different project types comes different interpretations of completion, and varying descriptions in the contract (Bailey, 2014).

According to Abdul Malak and El Saadi (2000), with the increasing complexity of construction documents and conditions of contract, the possibility of disputes, conflicting interpretations, and adversarial attitudes is increasing. Thus, primarily parties should clearly scrutinize the contract to determine any ambiguity regarding substantial completion or any other clause to avoid disputes at later stages (McConnell and Clevenger, 2018). To avoid those disputes, parties should clearly be able to determine the criteria needed to achieve the substantial completion milestone when scrutinizing the contract.

According to Johnson and Smith (200), courts have found that it's difficult to have unified criteria to determine substantial completion due to the high dependency of this notion on the contract and project type. Different contract forms treat substantial completion uniquely in terms of its description and its certification timeline. Thus, in order to assess when substantial completion is reached and avoid its risks and

contradictions, an adequate contract administration mechanism for this processes' certification must be formulated.

In general, the construction industry lacks the proper contract administration of the substantial completion stage. Thus, parties to a contract fall into different disputes associated with the date of certification of substantial completion. In order to avoid such disputes, protect the interests of the parties, and reduce the adversarial relationship that can rise, different aspects related to substantial completion must be studied to reach a streamlined contract administration of the substantial completion certification process. Those aspects should include the proper understanding of the different standard contract form's certification timelines, the prerequisites demanded by each contract and concluded from case laws to achieve substantial completion and to avoid disputes that result at this stage.

## CHAPTER 3

### SUBSTANTIAL COMPLETION CERTIFICATION IN STANDARD CONTRACT FORMS

#### **3.1 Preamble**

This Chapter discusses the description and administration of substantial completion in six different standard forms of contract. Those standard forms of contract are FIDIC 2017, AIA 2017, Consensus Docs 2017, EJCDC 2013, JCT 2009, and NEC 2013. The different standard forms of contract are scrutinized and the stated definition of substantial completion in each of them is extracted. The extracted definitions are compared in an attempt to find one enlarged definition that encompasses all the extracted definitions from the different standard contract forms. Moreover, with regard to administration, the steps for certifying substantial completion and the payment process thereafter are pointed out in an attempt to form the substantial completion certification timelines or timeframes unique to the different standard forms of contract. The steps inferred from the forms and that makeup the timeframes include, applying or assessing for certification, certifying substantial completion, applying for payment, certifying payment, and payment. In the final section of this chapter an all-encompassing substantial completion certification timeline is produced that includes or summarizes the different steps extracted from all the standard forms of contract in one enlarged timeframe.

## **3.2 Substantial Completion Definition**

In this section, the definition or description of substantial or practical completion is extracted from the different studied standard forms of contract. The exact sentences used in each standard are tabulated to be able to perform the comparison needed. This helps in identifying the most frequent wording used among the different definitions and the unique wording used in some definitions, in an attempt to create a unified definition.

### ***3.2.1 Extracted Definition of Substantial Completion from Standard Contract Forms***

The different extracted definitions or descriptions from the FIDIC 2017, AIA 2017, Consensus Docs 2017, EJCDC 2013, JCT 2009, and NEC 2013 are represented in Table 1,

Table 1 Definition of Substantial Completion in Standard Forms of Contracts

Standard Form	Clause/ Sub Clause/ Section Number	Definition of Substantial Completion
FIDIC 2017	8.2	The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including completion of all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking over under Sub-Clause 10.1 [ <i>Taking Over the Works and Sections</i> ].
AIA 2017	9.8.1	Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.
Consensus Docs 2017	2.4	“Substantial Completion” of the Work, or designated portion, occurs on the date when the Work is sufficiently complete in accordance with the Contract Documents so that Owner may occupy or utilize the Project, or designated portion, for the use for which it is intended, without unapproved disruption. The issuance of a certificate of occupancy is not a prerequisite for Substantial Completion if the certificate of occupancy cannot be obtained due to factors beyond Constructor’s control. This date shall be confirmed by a Certificate of Substantial Completion signed by the Parties.
EJCDC 2013	Article 1 (1.01) (A) (40)	<i>Substantial Completion</i> —The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
JCT 2009	3.3.1	In summary, practical completion is to be considered achieved where the Employer puts the facility being built to its intended use. Also, there is practical completion where the outstanding work or defects, even if apparent, are of a trifling nature. As the Architect has no authority to waive any requirement of the contract, he must still be slow to overlook any outstanding work even if clearly of a trifling nature. An appropriate course of action in such circumstances is to encourage negotiation between the Employer and the Contractor to reach an agreement whereby the Employer agrees to the issue of the certificate in return for written undertakings by the Contractor to carry out the outstanding work without undue delay. This caution is necessary because, under Clause 2.38, the Architect is authorized to issue instructions requiring the Contractor to make good ‘defects, shrinkages or other faults in the Works or Section [that] <i>appear</i> [authors’ emphasis] within the relevant Rectification Period ...’ Without such a collateral undertaking, the Contractor may therefore decline to make good defects that existed before the relevant Rectification Period. Although such defects are still a breach of contract for which the Employer would be entitled to damages, exercise by the Architect of his powers to ask the Contractor back to make them good may sometimes be more advantageous.
NEC 2013	11.2 (2)	Completion is when the Contractor has <ul style="list-style-type: none"> <li>• Done all the work which the Works Information states he is to do by the Completion Date and</li> <li>• Corrected notified Defects which would have prevented the Employer from using the works and others from doing their work.</li> </ul>

Standard Form	Clause/ Sub Clause/ Section Number	Definition of Substantial Completion
		If the work which the Contractor is to do by the Completion Date is not stated in the Works Information, Completion is when the Contractor has done all the work necessary for the Employer to use the works and for Others to do their work.

### 3.2.2 Substantial Completion Definition Comparison

The different phrases used in each standard contract form are compared. Similarities and differences in descriptions among the standards are pointed out and summarized below. Bold words or sentences represent the similar wording found in all the standards. However, italic words or sentences represent the unique words or sentences used in some standard forms of contracts.

- FIDIC 2017: **“The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including completion of all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking over under Sub-Clause 10.1 [*Taking Over the Works and Sections*].”**
- AIA 2017: **“Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.”**
- Consensus Docs 2017, **““Substantial Completion” of the Work, or designated portion, occurs on the date when the Work is sufficiently complete in accordance with the Contract Documents so that Owner may occupy or utilize the Project, or designated portion, for the use for which it**

**is intended**, without unapproved disruption. The issuance of a certificate of occupancy is not a prerequisite for Substantial Completion if the certificate of occupancy cannot be obtained due to factors beyond Constructor's control. This date shall be confirmed by a Certificate of Substantial Completion signed by the Parties.”

- EJCDC 2013, “**Substantial Completion—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended.**”
- JCT 2009, “**In summary, practical completion is to be considered achieved where the Employer puts the facility being built to its intended use.** Also, there is practical completion where the outstanding work or defects, even if apparent, are of a trifling nature. As the Architect has no authority to waive any requirement of the contract, he must still be slow to overlook any outstanding work even if clearly of a trifling nature. An appropriate course of action in such circumstances is to encourage negotiation between the Employer and the Contractor to reach an agreement whereby the *Employer agrees to the issue of the certificate in return for written undertakings by the Contractor to carry out the outstanding work without undue delay.* This caution is necessary because, under Clause 2.38, the Architect is authorized to issue instructions requiring the Contractor to make good ‘defects, shrinkages or other faults in the Works or Section [that] appear [authors’ emphasis] within the relevant Rectification Period ...’ Without such a collateral undertaking, the Contractor may therefore



decline to make good defects that existed before the relevant Rectification Period. Although such defects are still a breach of contract for which the Employer would be entitled to damages, exercise by the Architect of his powers to ask the Contractor back to make them good may sometimes be more advantageous.”

- NEC 2013, “**Completion is when the Contractor has Done all the work which the Works Information states he is to do by the Completion Date and Corrected notified Defects which would have prevented the Employer from using the works and Others from doing their work. If the work which the Contractor is to do by the Completion Date is not stated in the Works Information, Completion is when the Contractor has done all the work necessary for the Employer to use the works and for Others to do their work.**”

### ***3.2.3 Substantial Completion Collective Definition***

From the previously identified similarities and differences a collective definition which starts with a phrase that is repeated across all standard forms of contract, and includes all the additional descriptions uniquely identified from some standards is generated, and is as follows:

“Substantial Completion of the Work, or designated portion, occurs on the date when the Work is sufficiently complete in the opinion of the Owner’s Representative in accordance with the Contract Documents so that the Owner may occupy or utilize the Project, or designated portion, for the use for which it is intended or for the purposes of Taking Over (part 1), and without unapproved disruption (part 2). There is Substantial

Completion where the Contractor has corrected notified defects which would have prevented the Owner from using the Works and others from doing their work (part 3) expect for Work or defects, even if apparent, which are of a trifling nature. As the Owners' Representative has no authority to waive any requirement of the Contract, he must still be slow to overlook any outstanding Work even if clearly of a trifling nature. Thus, the Owner agrees to the issue of the Certificate in return for written undertakings by the Contractor to carry out the outstanding work without undue delay (part 4). Moreover, the issuance of a Certificate of Occupancy is not a prerequisite for Substantial Completion if the Certificate of Occupancy cannot be obtained due to factors beyond Contractor's control. This date shall be confirmed by a Certificate of Substantial Completion signed by the Parties (part 5).”

Different sentences and phrases in this combined definition are numbered. Table 2 summarizes the origin of each numbered sentence or phrase.

*Table 2 Sentences or Phrases Extracted from Standard Contract Forms*

Sentence/Phrase Number	Standard Forms of Contract
Part 1	FIDIC (2017) AIA (2017) Consensus Docs (2017) EJCDC (2013) JCT (2009) NEC (2013)
Part 2	Consensus Docs (2017)
Part 3	NEC (2013)
Part 4	JCT (2009)
Part 5	Consensus Docs (2017)

Regarding sentence (part 1), Table 2 shows that this sentence is similar in all six studied standard forms of contract. However, it should be noted that the exact wording of the sentence is taken from Consensus Docs (2017). All the other standards used similar words that conveyed the same meaning, which made this sentence similar in all standards. The remaining sentences (part 2), (part 3), (part 4), and (part 5) were only used in one

specific standard. Thus, they were added separately to the combined definition in an attempt to ensure a collective definition of substantial completion, which is realized by all standard forms of contract.

### **3.3 Administration of Substantial Completion Certification in Standard Contract Forms**

In this section of chapter 3, the administration of the substantial completion milestone throughout the different standard contract forms is discussed. By administration, we are referring to the steps to be followed in each standard to accomplish substantial or practical completion certification along with the payment certification after this important stage. Thus, a timeline for each standard form of contract is generated, which includes five major steps to be followed throughout the substantial completion certification milestone. Those steps include:

- The application for substantial completion certification submitted by the contractor or constructor, or the assessment of work for certification performed by the architect or project manager (owner's representative).
- The certification of substantial completion by the architect, project manager (owner's Representative), or owner.
- The application of payment after substantial completion submitted by contractor or constructor.
- The certification of payment by the architect, project manager (owner's Representative), or owner.
- Payment done by the owner.

Throughout the following sub-sections, the different generated timelines are presented along with the different clauses, sub-clauses, or articles extracted from each standard form of contract, and used to infer the timelines.

### ***3.3.1 FIDIC 2017 Substantial Completion Certification Timeline***

To be able to generate the substantial completion certification timeline, the FIDIC 2017 standard form is scrutinized. Table 3 summarizes the Sub- Clauses extracted from the FIDIC and that have been used to build the timeline.

Table 3 FIDIC 2017 Extracted Sub- Clauses

Action	Sub-Clauses from FIDIC 2017	Actor
Application for Substantial Completion Certification	Sub-Clause 10.1: The contractor may apply for a taking-over certificate <b>by giving a notice</b> to the engineer <b>not more than 14 days</b> before the Works will, in the Contractor's opinion, be complete and ready for taking over.	Contractor (Applier)
Substantial Completion Certification	Sub-Clause 10.1: The engineer <b>within 28 days</b> after receiving the Contractor's Notice, either <b>issue the Taking-Over Certificate</b> to the Contractor, stating the date on which the Works or Section were completed in accordance with the Contract.	Engineer (Certifier)
Application for Payment	Sub-Clause 14.10: <b>Within 84 days</b> after the Date of Completion of the Works, the Contractor shall <b>submit to the Engineer a Statement at completion</b> with the supporting documents, in accordance with Sub-Clause 14.3.	Contractor (Applier)
Payment Certification	Sub-Clause 14.6.1: The Engineer shall, <b>within 28 days</b> after receiving a Statement and supporting documents, <b>issue an IPC</b> to the Employer, with a copy to the Contractor: (a) stating the amount which the Engineer fairly considers to be due; and (b) including any additions and/or deductions which have become due under Sub-Clause 3.7 [Agreement or Determination] or under the Contract or otherwise, with detailed supporting particulars (which shall identify any difference between a certified amount and the corresponding amount in the Statement and give the reasons for such difference).	Engineer (Certifier)
Payment	Sub-Clause 14.7: The Employer <b>shall pay</b> to the Contractor: (b) <b>the amount certified</b> in each IPC issued under: (i) Sub-Clause 14.6 [Issue of IPC], <b>within the period stated in the Contract Data (if not stated, 56 days)</b> after the Engineer receives the Statement and supporting documents; or (ii) Sub-Clause 14.13 [Issue of FPC], within the period stated in the Contract Data (if not stated, 28 days) after the Employer receives the IPC;	Employer

In order to build up the FIDIC 2017 substantial completion certification timeline, thorough reading of the Sub-clauses extracted above is conducted. According to Sub-Clause 10.1, the contractor applies for a taking over certificate (substantial completion certification) by giving a notice to the engineer, which includes in the opinion of contractor the date of when substantial completion will be achieved. Then, after inspecting the progress of work on site, the engineer decides whether the work is substantially complete and he can issue the certificate or not. This may form a recurring or ongoing process up until the engineer accepts to issue the certificate. The certificate

if issued shall include the date on which the engineer has seen the work to have been substantially complete. Next, according to Sub-Clause 14.10, after certification the contractor shall apply for payment, but at this stage the application for payment is treated different from a regular interim application. This interim payment application is called a Statement at completion. It differs from regular interim payment applications as it includes part of the retention money, and the contractor is given up to a higher duration of time to submit it. Later, according to Sub-Clause 14.6.1, the engineer shall certify the money to be paid, and according to Sub-Clause 14.7 the owner shall pay within a specific time after certification. Moreover, it is important to note that a defects notification period will start to run from the date stated in the certificate as the date of substantial completion.

The different time bars given for each step are highlighted in bold in Table 3. Thus, based on the content of the Sub-Clauses which include the time bars and prerequisites of each step the following timeline in Figure 1 is built.

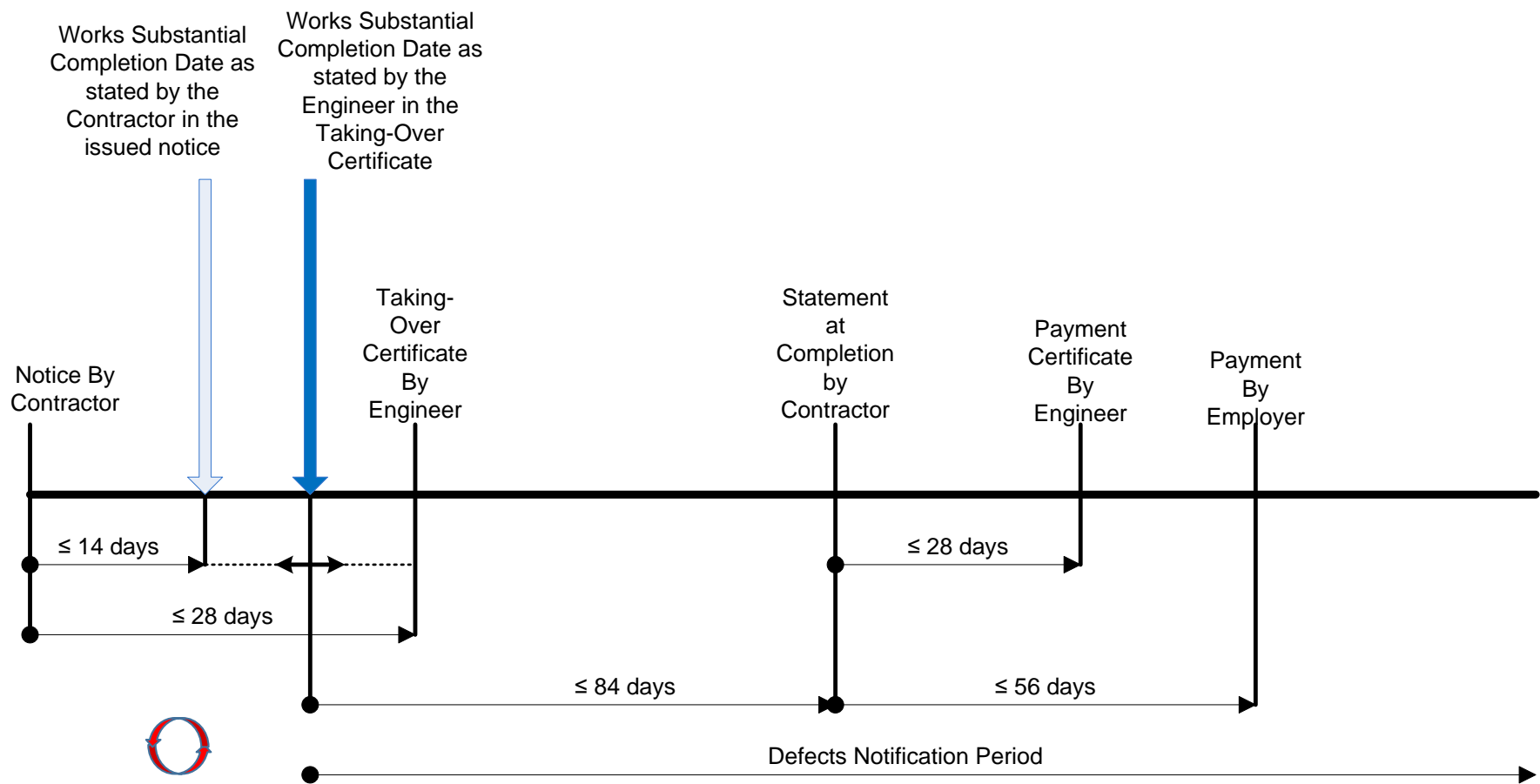


Figure 1 FIDIC 2017 Substantial Completion Certification Timeline

### 3.3.2 AIA 2017 Substantial Completion Certification Timeline

To be able to generate the substantial completion certification timeline the AIA 2017 standard form is scrutinized. Table 4 summarizes the Sub- Clauses extracted from the AIA, and that have been used to build the timeline.

*Table 4 AIA 2017 Extracted Sub- Clauses*

Action	Sub-Clauses from AIA 2017	Actor
Application for Substantial Completion Certification	Sub-Clause 9.8.2: <b>When</b> the Contractor considers that the Work or a portion thereof of which the Owner agrees to accept separately, is substantially complete, the Contractor shall <b>prepare and submit to the Architect a comprehensive list of items</b> to be completed or corrected prior to final payment.	Contractor (Applier)
Substantial Completion Certification	Sub-Clause 9.8.3: <b>Upon receipt</b> of the Contractor's list, the Architect will <b>make an inspection</b> to determine whether the Work or designated portion thereof is substantially complete. Sub-Clause 9.8.4: <b>When</b> the Work or designated portion thereof is substantially complete, the Architect will <b>prepare a Certificate of Substantial Completion</b> that shall establish the date of Substantial Completion. Sub-Clause 9.8.5: The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate.	Architect (Certifier)
Application for Payment	Sub-Clause 9.3.1: <b>At least ten days</b> before the date established for each progress payment, the Contractor shall <b>submit to the Architect an itemized Application for Payment</b> prepared in accordance with the schedule of values, if required under section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and release and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.	Contractor (Applier)
Payment Certification	Sub-Clause 9.4.1: The Architect will, <b>within seven days</b> after receipt of the Contractor's Application for Payment, either (1) <b>issue to the Owner a Certificate for Payment</b> in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner of the Architect's reason for withholding certification.	Architect (Certifier)
Payment	Sub-Clause 9.6.1: After the Architect has issued a Certificate for Payment, the Owner <b>shall make payment in the manner and within the time provided</b> in the Contract Documents, and shall notify the Architect.	Owner



In order to build up the AIA substantial completion certification timeline, thorough reading of the Sub-Clauses extracted above was conducted. According to Sub-Clause 9.8.2, as an application for substantial completion certification, the contractor submits a punch list to be completed when he sees substantial completion is achieved. After the contractor initiates the substantial completion certification process and according to Sub-Clauses 9.8.3, 9.8.4, and 9.8.5, the architect inspects the work to decide whether substantial completion has been achieved and certification can take place or not. Thus, this also forms a recurring or ongoing process that keeps on repeating until the architect accepts the work and issues a certificate that states the date of substantial completion. In the AIA, it is clearly stated that the certificate is submitted to both the contractor and owner for their acceptance of its details. Later, according to Sub-Clause 9.3.1, payment application after substantial completion is treated as a regular interim application, and submitted in the same timely manner, but includes part of the retained money. Finally, according to Sub-Clauses 9.4.1 and 9.6.1 respectively, the architect issues the certified amount of payment to the owner who shall pay this certified amount. Moreover, similar to other forms, a defects notification period starts to run from the date stated in the certificate as the date of substantial completion.

It is important to note that the different time bars for each step are highlighted in bold in Table 4. Thus, based on the content of the Sub-Clauses which include the time bars and pre-requisites of each step, the following timeline in Figure 2 is built.

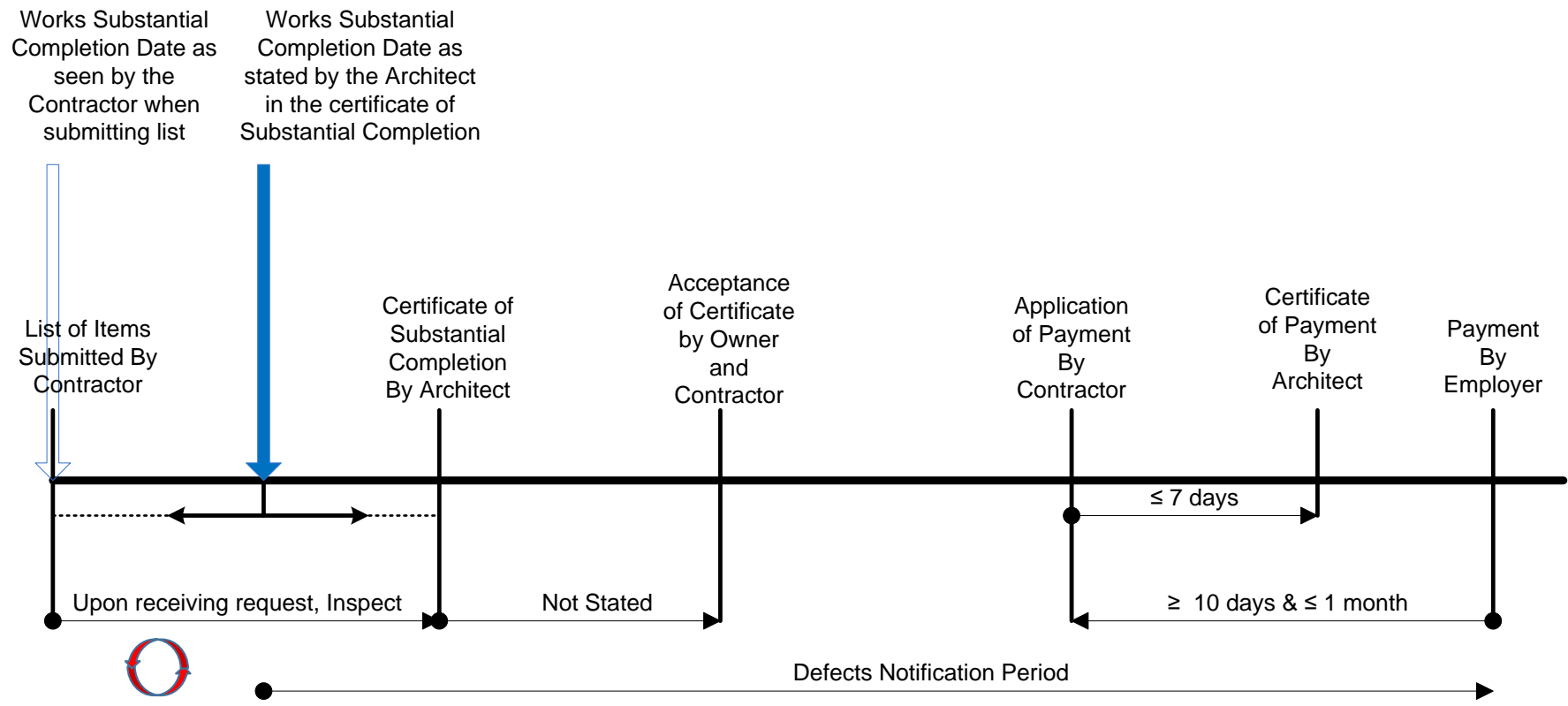


Figure 2 AIA 2017 Substantial Completion Certification Timeline

### 3.3.3 Consensus Docs 2017 Substantial Completion Timeline

To be able to generate the substantial completion certification timeline, the Consensus Docs 2017 standard form was scrutinized. Table 5 summarizes the Sub-Clauses extracted from the Consensus Docs and that have been used to build the timeline.

*Table 5 Consensus Docs 2017 Extracted Sub- Clauses*

Action	Sub-Clauses from Consensus Docs 2017	Actor
Application for Substantial Completion Certification	Sub-Clause 9.6.1: Constructor <b>shall notify</b> Owner and, if directed, Design Professional, <b>when it considers</b> Substantial Completion of the Work or designated portion to have been achieved.	Constructor (Applier)
Substantial Completion Certification	Sub-Clause 9.6.1: Owner, with the assistance of its Design Professional, shall <b>promptly conduct an inspection</b> to determine whether the Work or designated portion can be occupied or used for its intended use by the Owner. Sub-Clause 9.6.2: When Substantial Completion of the Work or designated portion is achieved, the <b>Constructor shall prepare a Certificate of Substantial Completion</b> establishing the date of Substantial Completion. Sub-Clause 9.6.2: The <b>Certificate of Substantial Completion shall be submitted</b> by Constructor to Owner and, if directed, to Design Professional for written acceptance.	Owner (Certifier)
Application for Payment	Sub-Clause 9.2.1: APPLICATIONS Constructor shall <b>submit to Owner</b> , and if directed, Design Professional a <b>monthly application for payment no later than the [x] Day of the calendar month for the preceding calendar month.</b> Constructor's applications for payment shall be itemized and supported by Constructor's schedule of values based on a percentage of completion and shall include any other substantiating data as required by this Agreement.	Constructor (Applier)
Payment Certification	Sub-Clause 9.3: <b>No later than 7 days</b> after receipt of an application for payment, Owner shall <b>give written notice to Constructor</b> , at the time of disapproving or nullifying all or part of an application for payment stating its specific reasons for such disapproval or nullification, and the remedial actions to be taken by Constructor in order to receive payment.	Owner (Certifier)
Payment	Sub-Clause 9.2.1: <b>Owner shall pay the amount due</b> on a payment application, <b>no later than fifteen (15) Days</b> after accepting such application. Owner may deduct from any progress payment amounts that may be retained pursuant to S 9.2.4.	Owner

In order to construct the Consensus Docs substantial completion certification timeline, thorough reading of the Sub-Clauses extracted above is conducted. According to Sub-Clause 9.6.1, the constructor notifies the owner of the achievement of substantial

completion. Then, according to Sub-Clauses 9.6.1 and 9.6.2, an inspection of the work is performed by the owner, and a certificate of substantial completion is prepared by the constructor stating the date he thinks substantial completion has been achieved. This certificate is to be accepted or rejected by the owner based on his performed inspection to determine if substantial completion has been achieved or not, which usually forms an ongoing or recurring step between the two parties. Also here the application for payment after substantial completion is treated as an interim application under Sub-Clause 9.2.1, and is submitted on a specific preset date. Finally, according to Sub-Clause 9.3 and 9.2.1 respectively, the owner shall certify payment and pay the amount due within a specified time. Similar to all standard forms, a defects notification period starts to run from the date stated in the certificate as the date of substantial completion.

It is important to note that the different time bars for each step are highlighted in bold in Table 5. Thus, based on the content of the Sub-Clauses which include the time bars and pre-requisites of each step the following timeline in Figure 3 is built.

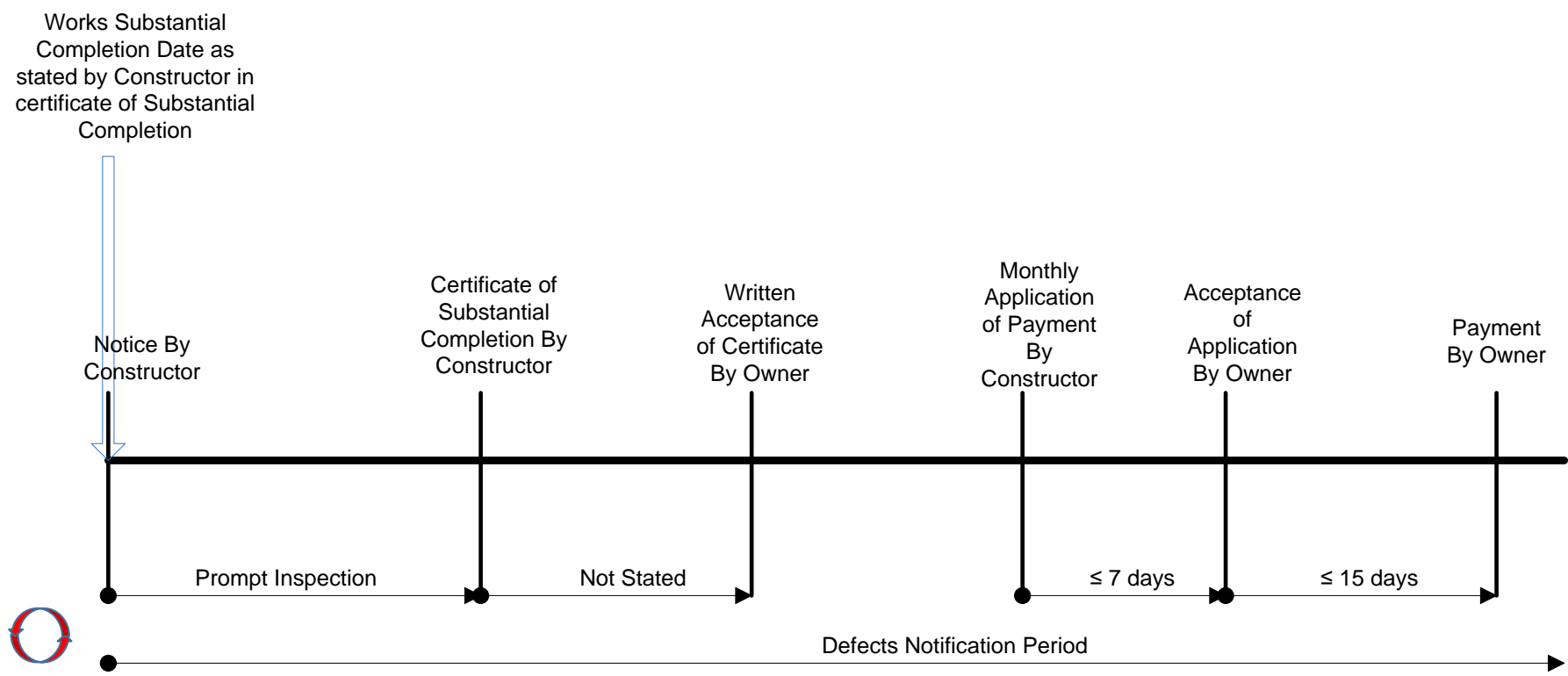


Figure 3 Consensus Docs 2017 Substantial Completion Certification Timeline

### 3.3.4 EJCDC 2013 Substantial Completion Certification Timeline

To be able to generate the substantial completion certification timeline, the EJCDC 2013 standard form is scrutinized. Table 6 summarizes the Articles extracted from the EJCDC and that have been used to build the timeline.

*Table 6 EJCDC 2013 Extracted Articles*

Action	Articles from EJCDC 2013	Actor
Application for Substantial Completion Certification	Article 15.03 (A): <b>When Contractor considers</b> the entire Work ready for its intended use Contractor shall <b>notify</b> Owner and Engineer <b>in writing</b> that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.	Contractor (Applier)
Substantial Completion Certification	Article 15.03 (B): <b>Promptly after</b> Contractor's notification, Owner, Contractor, and Engineer shall <b>make an inspection</b> of the Work to determine the status of completion./ Article 15.03 (C): If Engineer considers the Work substantially complete, Engineer <b>will deliver</b> to Owner a <b>preliminary certificate of Substantial Completion</b> which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment./ Owner <b>shall have seven days</b> after receipt of the preliminary certificate during which to <b>make written objection</b> to Engineer as to any provisions of the certificate and attached punch list. If owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will <b>within 14 days</b> , execute and deliver to Owner and Contractor <b>a final certificate of Substantial Completion.</b>	Engineer (Certifier)
Application for Payment	Article 15.01 (B 1): <b>At least 20 days</b> before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review <b>an Application for Payment</b> filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents	Contractor (Applier)
Payment Certification	Article 15.01 (C 1): Engineer will, <b>within 10 days</b> after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the <b>Application to Owner</b> , or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.	Engineer (Certifier)
Payment	Article 15.01 D: <b>Ten days</b> after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) <b>will become due, and when due will be paid by Owner</b> to Contractor.	Owner

In order to develop the EJCDC substantial completion certification timeline, thorough reading of the Articles extracted above is conducted. According to Article 15.03 (A), the contractor applies for certification by sending a written notification to the owner and engineer with a list of snagging items. Then, according to Articles 15.03 (B) and (C), the parties shall inspect the work, and if engineer determines that the work is substantially complete he will issue a preliminary certificate of substantial completion to the owner. This preliminary certificate only becomes final if the owner accepts it. Thus, here we have a two stepped certification system with recurrence that can take place in each step until all parties agree on a completion date. Moreover, the owner here is given a clear and direct saying in determining the date of substantial completion along with the engineer. Also, in this timeline the payment application after substantial completion is treated as a normal interim application and submitted in the same manner. Finally, according to Articles 15.01 (C) and 15.01 (D), the engineer shall certify the payment after substantial completion and submit it to the owner within a specific time for it to become due to the contractor. Similarly, the defects notification period starts to run from the date stated in the certificate as the date of substantial completion.

Also here, the different time bars for each step are highlighted in bold in Table 6. Thus, based on the content of the Articles which include the time bars and pre-requisites of each step the following timeline in Figure 4 is built.

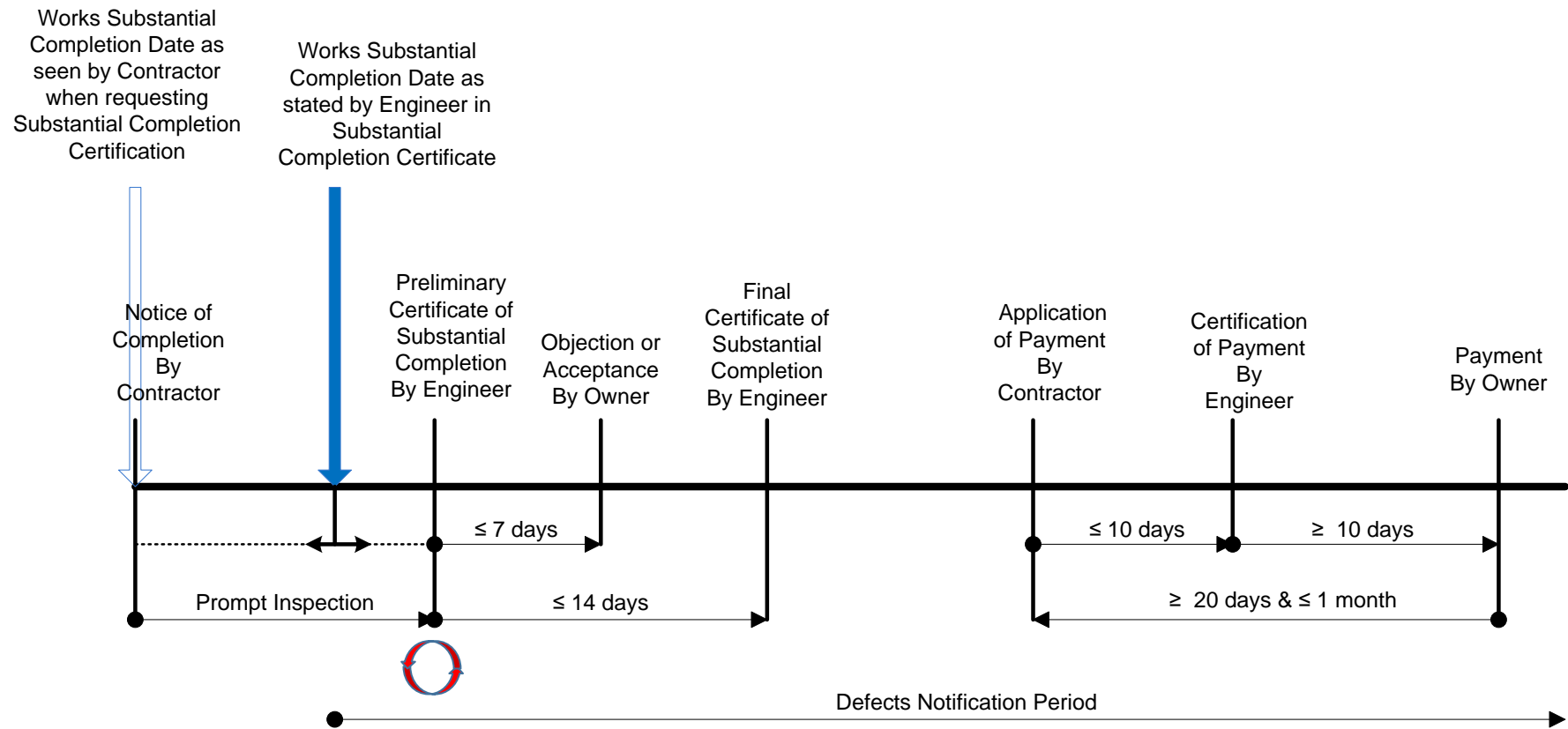


Figure 4 EJCDC 2013 Substantial Completion Certification Timeline



### ***3.3.5 JCT 2009 Practical Completion Certification Timeline***

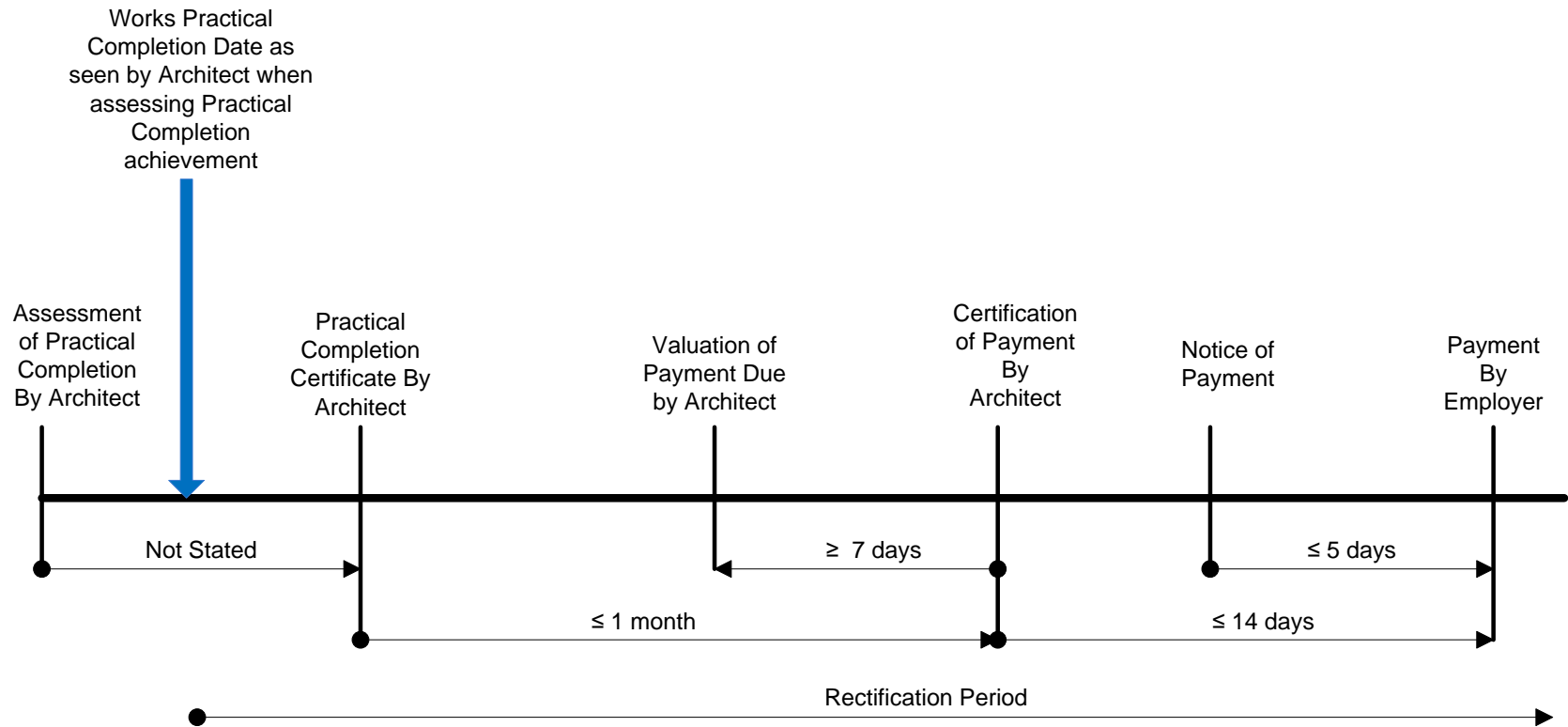
To be able to generate the practical completion certification timeline, the JCT 2009 standard form is scrutinized. Table 7 summarizes the Clauses extracted from the JCT and that are used to build the timeline.

Table 7 JCT 2009 Extracted Clauses

Action	Clauses from JCT 2009	Actor
Assessment of Practical Completion	2.4.2.8: Under Clause 2.30 it is a condition precedent for the issue of the Practical Completion Certificate that <b>the Architect reaches the opinion that practical completion of the Works has been achieved.</b> He may therefore withhold the issue of the Certificate until defects, other than those of a trifling nature, are made good. Furthermore, he may issue a Non-Completion Certificate, one of the triggering events for the Employer's entitlement to liquidated damages, if the defects remain up to the Completion Date.	Architect (Assessor)
Practical Completion Certification	3.3: Clause 2.30 provides that the Architect must forthwith <b>issue a Practical Completion Certificate when practical completion of the Works or Section has been achieved</b> and the following conditions have been met: the Contractor has complied sufficiently with his obligation under Clause 3.25.3 to supply information requested by the CDM coordinator for compilation of the Health and Safety File and has ensured similar compliance by his sub-contractors; the Contractor has supplied the Employer with all as-built drawings and other information on the Contractor's Designed Portion (Clause 2.40).	Architect (Certifier)
Valuation of Payment	15.2: By Clauses 4.9.1 and 4.9.2, from time to time, the Architect is to issue Interim Certificates stating the amounts to be paid to the Contractor. Generally, the amount in an Interim Certificate is an instalment of the Contract Sum reflecting the accomplishment of the Contractor's obligations since the previous Interim Certificate. As with every Certificate of the Architect, Interim Certificates are to be issued to the Employer, with a copy to the Contractor (Clause 1.9). The amount in an Interim Certificate is to be determined by applying valuation rules in Clauses 4.10, 4.16 and 4.20 to work done up to and including a date not more than 7 days before the date of the Certificate. This means that the amount does not include monies earned under the Contract in the 7 days immediately preceding the date of the Certificate.	Architect (Evaluator)
Payment Certification	15.2.1.1: It is also stated in the Contract Particulars that if the date of the first Interim Certificate is not stated in any of these ways, <b>Interim Certificates are to be issued</b> at intervals not exceeding one month up to the date of Practical Completion or to <b>within one month after that date.</b> In that event, the first Interim Certificate is to be issued within 1 month of the Date of Possession. Clause 4.9.2 : The parties have three options for identifying the payment certification timetable: (1) Specified start date followed by the same date each month or the nearest business day, or (2) Periods of no longer than one month after the Date for Possession, or (3) The last day of each month, following the last day of a defined month. Option (3) requires amendment to the standard entry (see JCT Footnote [17] for suggested words). If no entry is made, the default position is the second of the above options.	Architect (Certifier)
Payment	15.2.2: Clause 4.13.1 implements the requirement for a final date in <b>relation to payment</b> on an Interim Certificate by providing that it is <b>14 days from the date of its issue.</b> 15.2.3: Section 110(2) of the original Construction Act states: Every construction contract shall provide for the giving of notice by a party not later than five days after the date on which payment becomes due to him under the contract, or would have become due.	Owner

In order to develop the JCT practical completion certification timeline, thorough reading of the Articles extracted above is conducted. According to Clause 2.30, the Architect is the one to directly decide when practical completion is achieved and certify this stage with no prior application from the contractor. Thus, unlike the other standard forms of contract such a certification doesn't consist of any give and take between the parties, since the architect is the one to directly certify when he sees this stage has been accomplished. Then, according to clauses 4.9.1 and 4.9.2, the payment certification after practical completion is also treated as an interim payment certification to be certified within one month from the date of the practical completion certificate. Moreover, it is important to note, that the contractor here does not apply for payment rather the owner's representative is the one to evaluate the payment. Finally, according to clause 4.13.1, the owner is to pay the evaluated amount of payment within a specific time from its certification. Similar to the previous standard forms of contract, a defects notification period starts to run from the date stated in the certificate as the date of substantial completion.

It is important to note that the different time bars for each step are highlighted in bold in Table 7. Thus, based on the content of the Clauses which include the time bars and pre-requisites of each step the following timeline in Figure 5 is built.



*Figure 5 JCT 2009 Practical Completion Certification Timeline*

### 3.3.6 NEC 2013 Substantial Completion Certification Timeline

To be able to generate the substantial completion certification timeline, the NEC 2013 standard form is scrutinized. Table 8 summarizes the Core Clauses extracted from the NEC and that are used to build the timeline.

*Table 8 NEC 2013 Extracted Core Clauses*

Action	Core Clauses from NEC 2013	Actor
Assessment of Substantial Completion	Core Clause 30.2: The Project Manager decides the date of Completion.	Project Manager (Assessor)
Substantial Completion Certification	Core Clause 30.2: The Project Manager <b>certifies Completion within one week</b> of Completion.	Project Manager (Certifier)
Application for Payment	Core Clause 50.1: The Project Manager assesses the amount due at each assessment date. The first assessment date is decided by the Project Manager to suit the procedures of the Parties and is not later than the assessment interval after the starting date. <b>Later assessment dates</b> occur: at the end of each assessment interval until four weeks after the Supervisor issues the Defects Certificate <b>and at Completion of the whole of the works.</b> Clause 50.4: In assessing the amount due, The Project Manager considers any <b>application for payment</b> the Contractor has submitted <b>on or before the assessment date.</b>	Contractor (Applier)
Payment Certification	Core Clause 51.1: The Project Manager <b>certifies</b> a payment <b>within one week</b> of each assessment date. The first payment is the amount due. Other payments are the change in the amount due since the last payment certificate.	Project Manager (Certifier)
Payment	Core Clause 51.2: Each certified <b>payment is made within three weeks</b> of the assessment date or, if a different period is stated in the Contract Data, within the period stated.	Employer

In order to construct the NEC substantial completion certification timeline, thorough reading of the Core Clauses extracted above is conducted. According to Core Clause 30.2, the project manager certifies completion within one week from when he sees works are complete. Thus, also here, the contractor is not given the opportunity to apply for certification rather the project manager is the sole decider. Moreover, payment after certification is also treated as an interim payment and its application is to be submitted on or before a payment assessment date. Here a payment assessment date is to be done by the project manager at completion of work. Then, according to Core Clauses 51.1 and

51.2, the project manager is to certify the amount due and the owner is to pay within a specific time for both. Moreover, a defects correction period will start to run from the date stated in the certificate as the date of substantial completion. However, here the defects correction period can be extended for any defect realized after completion.

It is important to note that the different time bars for each step are highlighted in bold in Table 8. Thus, based on the content of the Clauses which include the time bars and pre-requisites of each step the following timeline in Figure 6 has been built.

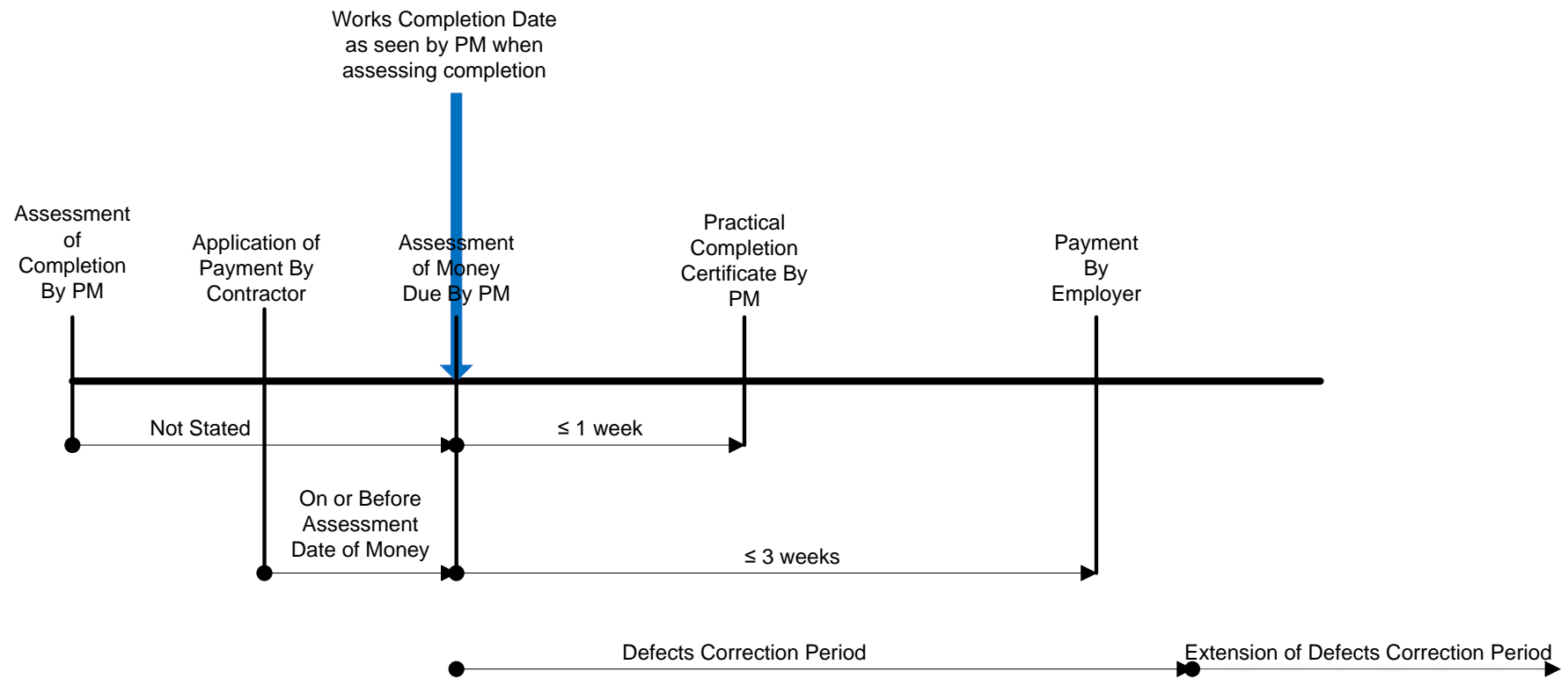


Figure 6 NEC 2013 Substantial Completion Certification Timeline

### **3.4 All Encompassing Substantial Completion Certification Timeline**

Figures 7 and 8 represent an all-encompassing timeline for the certification of substantial completion. Figure 7 summarizes or encompasses all the steps for certification without the payment after certification steps from all the timelines inferred including all the time bars for each step. Moreover, Figure 8 summarizes the payment after completion steps inferred from all the timelines of the different standard forms of contracts studied. In all illustrations shown below, the following abbreviations are used:

- F: FIDIC 2017
- A: AIA 2017
- C: Consensus Docs 2017
- E: EJCDC 2013
- J: JCT 2009
- N: NEC 2013





Works Substantial Completion or Practical Completion Date

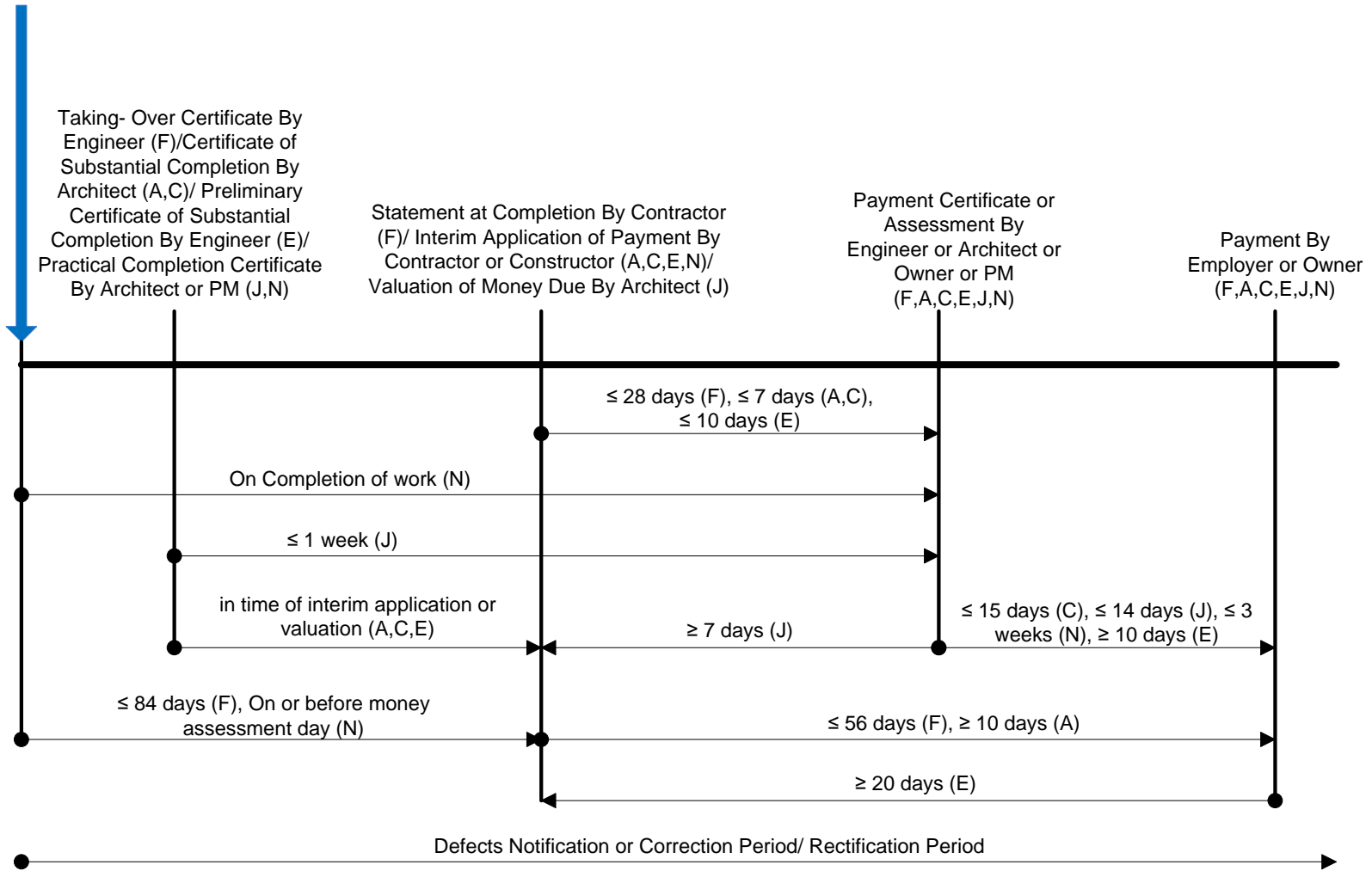


Figure 8 All Encompassing Payment after Substantial Completion Certification Timeline

## CHAPTER 4

### THE RELEVANCE OF SUBSTANTIAL COMPLETION IN CASE LAWS

#### **4.1 Relevance of Case Law Analysis**

This chapter sheds light on the different instances in several construction case laws where the substantial completion date has been debated. 46 different case laws are studied in an attempt to extract the reasons or the instances where the knowledge of the exact date of substantial completion was important for the judges to make their determination. First, the different case laws studied are summarized. After the summary of the different case laws, the extracted instances of when the substantial completion date has been disputed are tabulated. Through the extraction of the most frequent claims or disputes that involve or require the need for determining the date of substantial completion of the works, the importance of the proper determination or certification of substantial completion is revealed. Thus, this type of case law analysis can enlighten parties of a contract about the different disputes they may face if they did not properly administer and determine the substantial completion certification milestone. This may help parties avoid or shy away from debating the substantial completion date and try their best to properly certify substantial completion.

#### **4.2 Summary of Case Laws**

This section of chapter 4 summarizes the different case laws that have been read. The summary includes the case name, the parties at dispute, and the dispute reason as extracted and summarized from the case law, all shown in Table 9. Moreover, the

case laws are numbered and those numbers will be used as reference of the case later on. From this summary the relevant analysis of this chapter is performed.

Table 9 Extracted Dispute Reasons from Case Laws

Case Number	Case	Party 1	Party 2	Dispute Reason
1	All Seasons Constr., Inc. v. Mansfield House. Auth.	All Seasons Construction, INC. (Claimant-Appellee)	Mansfield Housing Authority (Defendant-Appellant)	Parties argue whether liquidated damages can be deducted or not based on when substantial completion occurred.
2	Mount Olivet Baptist Church, Inc. v. Mid-State Builders, Inc.	Mount Olivet Baptist Church, Inc. (Plaintiff-Appellee)	Mid-State Builders, Inc. (Defendant-Appellant)	Owner debates whether the completion beyond substantial completion date was due to excusable delays beyond the control of contractor or not.
3	Reliance Ins. Co. v. Utah Dep't of Transportation	Reliance Insurance Company (Plaintiff-Appellant)	Utah Department of Transportation (Defendant-Appellee)	Contractor raises questions about what constitutes substantial completion when attacking the liquidated damages provision.
4	Carrothers Constr. Co., L.L.C. v. City of South Hutchinson	Carrothers construction company, L.L.C. (Appellant)	City of South Hutchinson, Kansas (Appellee)	Owner disputes what constitutes substantial completion in the contract, and when it has occurred.
5	Trinity Contr. V. Mun. Auth. Of Sewickley & Gibson-Thomas	Trinity Contracting, INC. (Plaintiff)	Municipal Authority of the Township of Sewickley and Gibson-Thomas, INC. (Defendants)	Owner counterclaims for loss of revenue due to contractors failure to complete work on time, and for damages for the failure of the contractor to properly complete the punch list.
6	DeLong v. Walton on the Park South, LLC	Ryan DeLong (Plaintiff-Counter Defendant-Appellee)	Walton on the park south, LLC (Defendant-Counter Plaintiff-Appellant)	Contractor appeals that the owner has no right to terminate the contract, and seeks damages.
7	Perini Corp. v. Greate Bay Hotel & Casino, Inc.	Perini Corporation, a Massachusetts Corporation (Plaintiff-Appellant)	Greate Bay Hotel & Casino, Inc., T/A Sands Hotel & Casino, Inc., a New Jersey Corporation (Defendant-Respondent)	Contractor appeals an arbitrator's decision for awarding damages including lost profits after the date of substantial completion.
8	People ex rel. Hammer v. Lumbermens Mut. Cas. Co.	The People of the State of Illinois ex rel. (Plaintiff-Appellee)	Lumbermens Mutual Casualty Company (Claimant-Appellant)	Contractor seeks the contract balance owed, and the owner counterclaims for liquidated damages.
9	Mursor Builders v. Crown Mt. Apt. Assocs.	Mursor Builders, Inc. (Plaintiff)	Crown Mountain Apartment Associates (Defendants)	Contractor seeks the unpaid retentions and the remaining money owed, whereas the owner contends that it is owed liquidated damages.

Case Number	Case	Party 1	Party 2	Dispute Reason
10	O & M Const., Inc. v. State, Div. of Admin.	O & M Construction, Inc. (Appellant)	State of Louisiane, Division of Administration (Defendant)	Contractor claims that liquidated damages are wrongfully assessed by owner, because substantial completion should have been certified.
11	Continental Illinois Nat'l Bank & Trust Co. v. United States	Continental Illinois National Bank and Trust Company	United States of America	Contractor claims that work is to be considered substantially complete, so liquidated damages are wrongfully assessed.
12	Hutton Contr. V. City of Coffeyville	Hutton Contracting Co., Inc. (Plaintiff)	City of Coffeyville (Defendant)	The owner claims it is entitled to offset the unpaid contract balance owed to the contractor with liquidated damages.
13	B.M. Co. v. Avery	B.M. Co., A Guam Partnership (Plaintiff-Appellant/ Cross Appellee)	Jummy K. Avery and Maria F. Avery (Defendants- Appellees/ Cross-Appellants)	Contractor challenges a decision that awarded damages including liquidated damages to owner in a breach of contract action.
14	Page v. Travis-Williamson County Water Control & Improv. Dist	Holland Page et al. (Petitioners)	County Water Control and Improvement District No. 1 (Respondent)	Contractor seeks amounts due under contract from owner, and sues subcontractor for failure to substantially complete the work. Owner counterclaims seeking liquidated damages, whereas subcontractor seeks amounts due for extra work.
15	J.D. Hedin Constr. Co. v. United States	J.D. Hedin Construction Company, Inc. (Plaintiff)	United States (Defendant)	Contractor sues for breach of contract: its contract has been wrongfully terminated, and it has been assessed liquidated damages for new contractors delay to complete.
16	Brooks Towers Corp. v. Hunkin-Conkey Constr. Co.	Brooks Towers Corporation et al. (Plaintiffs-Appellants and Cross-Appellees)	Hunkin-Conkey Construction company and Federal Insurance Company (Defendants-Appellees and Cross-Appellants)	Owner argues that the contractor failed to meet substantial completion date, whereas contractor argues that substantial completion date has been postponed by excusable delay.
17	Herbert & Brooner Constr. Co. v. Golden	Herbert & Brooner Construction Co. (Appellant)	Donald Golden, et al. (Respondents)	Contractor challenges a decision for his claim to enforce a mechanic's lien, and owner cross-appeals for the denial of his lost rentals and damages.
18	Hemenway Co. v. Bartex, Inc. of Texas	Hemenway Company, Inc. (Plaintiff)	Bartex, Inc. of Texas et al. (Defendant)	Contractor and surety appeals on awarded damages to owner and defects in construction.
19	Utica Mut. Ins. Co. v. Di Donato	Utica Mutual Insurance Company, A Corporation of the State	S. Leonardo Didonato, As Director, Division of Building and Construction, Department of the	Surety argues that owner intentionally, recklessly and in bad faith has disbursed payments for contractor for work that has not been completed causing it to suffer damages.

Case Number	Case	Party 1	Party 2	Dispute Reason
		of New York (Plaintiff-Appellant)	Treasury of the State of New Jersey (Defendant)	
20	Stone v. Arcola	E.R. Stone, d/b/a E.R. Stone Heavy Equipment Company (Plaintiff-Appellee)	The City of Arcola (Defendant-Appellant)	Contractor seeks funds due under the contract and alleges breach of contract and unjust enrichment by the owner. The owner counterclaims to recover liquidated damages.
21	PIH Beaverton, LLC, v. Super One, Inc.	PIH Beaverton, LLC (Plaintiff)	Super One, Inc. (Defendant)	Defendant argues whether the Plaintiff has timely filed an action against defendants for negligence, nuisance, and trespass or not.
22	Sunset Presbyterian Church v. Brockamp & Jeager, Inc.	Sunset Presbyterian Church (Respondent on Review)	Brockamp & Jeager, Inc. (Defendants-Respondents)	General contractor alleges that owner's defects claims have been time barred by statute of limitations.
23	Mariner International Hotels Ltd v. Atlas Ltd	Mariner International Hotels Ltd (Petitioner)	Atlas Ltd (Defendant)	Vendor and purchaser accuse each other of repudiating the sale agreement. Purchaser argues that substantial completion by a specific date is condition precedent to purchase completion.
24	Multiplex Constructions P/L & Anor v. Abigroup Contractors	Multiplex Constructions Pty Ltd (Applicant)	Abigroup Contractors Pty Ltd (appellant)	Subcontractor challenges an order that has modified its notice of claim of charge. Joint ventures challenge the rejection of its claim stating that a notice must be given for the claim of charge within a time limit from substantial completion.
25	Corbertt Court Pty Limited v. Quasar Constructions Pty Ltd	Corbertt Court Pty Limited (Plaintiff)	Quasar Constructions Pty Ltd (Defendant)	Owner seeks liquidated damages for delay to reach substantial completion while contractor contends that it has been entitled to time extensions.
26	Uszok v. Henley Properties Pty Limited	Peter Uszok (Appellant)	Henly Properties Pty Limited (Respondent)	Contractor contends that it has brought the property to the stage of 'practical completion' so as to be entitled to the entire contract price. Owner denies that the property has been in a state of 'practical completion' and that there has been significant defects in the construction. He cross-claims against the respondent for the costs of rectification of the defects, and makes other claims for breach of contract.
27	Clyde Contractors P/L v. Northern Beachs Dev. P/L	Clyde Contractors Pty Ltd (Plaintiff)	Northern Beachs Developments Pty Ltd (Defendant)	The contractor claims that a stage of practical completion has been achieved, and that the owner has failed to pay monies owing to it including retention money. Owner counterclaims for liquidated damages.

Case Number	Case	Party 1	Party 2	Dispute Reason
28	Cordon Investments Pty Ltd v. Lesdor Properties Pty Ltd	Cordon Investments Pty Ltd (Plaintiff)	Lesdor Properties Pty Ltd (Defendant)	Parties argue regarding the right to terminate a joint venture while both sides claim for damages. The issue is whether substantial or full completion is required by contractor joint venture.
29	Enterprise Managed Services Limited v. East Midland Contracting Limited	Enterprise Managed Services Limited (Claimant)	East Midland Contracting Limited (Defendant)	Subcontractor claims to reverse a decision where it has been required to pay damages for breach of contract. This Breach is related to "The parties shall not commence any action or proceeding other than adjudication arising out of or in connection with this Sub-Contract until such time as the Main Contract Works have been certified substantially or practically complete."
30	Ramada Dev. Co. v. Rauch	Ramada Dev. Co. (Appellant)	Rauch (Respondent)	Contractor seeks the balance due under the contract, whereas the owner counterclaims for failure to perform according to the contract and for negligence in planning and construction of the project.
31	Impersa Castelli SpA v. Cola Holdings Ltd	Impersa Castelli SpA (Plaintiff)	Cola Holdings Ltd (Defendant)	The parties are disputing the extensive delays that occurred in achieving practical completion and the date or dates on which practical completion has been achieved. Contractor also claims for additional loss and expense and owner claims for liquidated damages.
32	Lucas Stuart Pty Ltd v. Hemmes Hermitage Pty Ltd	Lucas Stuart Pty Ltd (Applicant)	Hemmes Hermitage Pty Ltd (Respondent)	Owner claims that it should call on the performance bonds due to the presence of defects, whereas the contractor claims that substantial completion has been certified.
33	Trinity Church v. Lawson-Bell	Trinity Church (Plaintiff- Appellant)	Atkin Olishin Lawson-Bell (Defendant- Respondent)	Owner brings a breach of contract suit against architect and contractor for alleged construction defects, and claims that architect in fraud certified substantial completion.
34	Carrothers Constr. Co., L.L.C. v. City of South Hutchinson	Carrothers construction company, L.L.C. (Appellant)	City of South Hutchinson, Kansas (Appellee)	The contractor contends that the district court erred in determining the substantial completion date when awarding the owner liquidated damages.
35	City of Wolfe City v. Am. Safety Cas. Ins. Co.	The City of Wolfe City, Texas (Appellant)	American Safety Causality Insurance Company (Appellee)	The parties argue about if the trial court erred in granting the surety's motion for summary judgment, because the surety's obligations under the contract has extended beyond substantial completion, and it has been liable under its performance bond for the contractor's default.
36	Hensel Phelps Construction Co. v. Superior Court	Hensel Phelps Construction Co. (Petitioner)	The Superior Court of San Diego County (Respondent)	Parties argue when the statute of ultimate repose has been triggered. They argue when has substantial completion been achieved, and if a



Case Number	Case	Party 1	Party 2	Dispute Reason
				notice of completion has verified substantial completion certification.
37	C & S Safety Sys. V. SSEM Corp.	C&S Safety Systems Inc. (Plaintiff)	SSEM Corporation, Continental Common Inc., Actel Integrated Communications Inc., and Delta Contractors of New Orleans Inc. (Defendants)	The subcontractor files a statement of claim and privilege against the owner and the general contractor to preserve its lien and privilege rights. Substantial completion marks the beginning of the lien period.
38	Kilo 6 Owners Ass'n v. Everett Hangar LLC	Kilo 6 Owners Association et al. (Appellants)	Everett Hangar LLC (Respondent)	Parties argue if a Lot has been certified substantially complete or not.
39	HC Beck Ltd. V. PCCP CS Forum Portales Phase II LLC.	HCBeck Ltd a Texas Limited Partnership (Plaintiff/ Appellant/ Cross-Appellee)	PCCP CS Forum Portales Phase II LLC, a Delaware Limited Liability Company (Defendant/ Appellee/ Cross-Appellant)	The parties dispute which building permit triggered the contract period, and when substantial completion has occurred. They have filed cross motions for summary judgment on the liquidated damages issue.
40	SP Terrace L.Pv. Meritage Homes of Tex. LLC	SP Terrace L.P and Tyee Management LLC (Appellants)	Meritage Homes of Texas LLC (Appellee)	The builder terminates the contract and demands the return of its earnest money deposit, as after substantial completion the developer would purchase the lots.
41	Holy Family Catholic Congregation v. Stubenrauch Associates, Inc.	Holy Family Catholic Congregation (Plaintiff-Appellant)	Stubenrauch Associates, Inc. and Hoffman Company, Inc. (Defendants-Respondents)	Owner appeals an order of the Circuit Court which has granted summary judgment in favor of defendants, an architect and a general contractor that has proved that a suit has been rendered untimely (statute of limitation from date of substantial completion).
42	McCarthy Brothers Construction Company v. Samuel R. Pierce, Jr.	McCarthy Brothers Construction Company, a Missouri corporation (Plaintiff)	Samuel R. Pierce, Jr. (Defendants)	The parties to this lawsuit disagree as to whether plaintiff fulfilled the second condition required to qualify for the incentive fee. Their disagreement has risen from a dispute over the definition of the term "substantial completion."
43	Mears ltd v. Costplan Services Ltd	Mears Ltd (Plaintiff)	Costplan Services ltd and others (Defendant)	The parties argue if the variation of the work is deemed material or not for substantial completion certification.
44	William Mark Smith and Marsha Smith v. James Arnett and Leslye Arnett	William Mark Smith and Marsha Smith (Appellants)	James Arnett and Leslye Arnett (Appellees)	The contractor claims that the owner breached the contract after refusing to complete the purchase of the home, since it has not substantially complete. Moreover, the contractor seeks to recover money owed to him for his work.

Case Number	Case	Party 1	Party 2	Dispute Reason
45	Town of Kearny v. Brandt-Kuybida Architects	Town of Kearny (Plaintiff-Appellant and Cross-Respondent)	Brandt-Kuybida Architects (Defendants-Respondents and Cross-Appellants)	Parties' debate when a building can be considered substantially complete for purposes of calculating the ten-year period of the statute of repose.
46	J.M, Beeson Co. v. Sartori	J.M. Beeson (Appellant)	Sartori (Appellee)	Contractor has left the job because of nonpayment and filed suit. Owner counterclaims for breach of contract and for the liquidated damages provided in the contract.

### **4.3 Reasons, Instances, or Circumstances Extracted from Case Laws**

Based on the previously summarized dispute reasons in Table 9 where the substantial completion date has been debated between the parties of a contract, Table 10 has been generated showing the circumstances or instances, in one word, at which the date of substantial completion is important to be determined. Multiple “x” marks are shown in each row of Table 10, which represents the dispute instances at which the substantial completion date has been debated in each case.

8 categories have been extracted representing the reasons, instances, or circumstances at which the date or certification of substantial completion is debated. The reasons extracted are well anticipated due to the significance of the substantial completion stage and the events usually generated by its certification. The first reason for debating the substantial completion date is seen in disputes that can arise out of the substantial completion definition by itself. It is very important to have a clear definition and administration of substantial completion in the contract to ensure that both parties have a clear understanding of their duties, and the instance at which substantial completion is to be certified. Otherwise, the parties will not reach a common ground of when substantial completion is to be certified and disputes will arise. The second instance is when liquidated damages claims come into play. Also, such a dispute instance is well anticipated, for the levying of liquidated damages shall seize upon the achievement of substantial completion. Therefore, with any dispute or claim that is related to liquidated damages, the date of substantial completion shall be properly stated. Here each party will tend to acknowledge a date that positively affects its determination of the sum of liquidated damages. Additionally, at some instances where incentive fees are present in a contract, if any claim or dispute rises around them, the

date of substantial completion will be analyzed. Incentive fees are fees given if the contractor finishes his work ahead of the agreed too substantial completion date. Thus, each party may insist on an actual substantial completion date that benefits its calculations of those fees. Also, when parties disagree about delay analysis and time extensions, the date of substantial completion will come into play. Each party shall state the date it sought work to be substantially completed and calculate and group the delays into excusable and not. Other instances for disagreeing about the date of substantial completion is during retention money and other money owed claims. It is clearly known that part of the retention money is released upon the certification of substantial completion. Thus, the failure of releasing the retention money or money owed can trigger disputes. Each party will also base its determination of the date of substantial completion in preference of its own interests. General circumstances related to defects, breach of contract, failure to perform, and termination of contract can also raise issues related to the substantial completion certification stage or date. In such cases the parties may debate that substantial completion should not be certified because the contractor failed to substantially perform his work. Finally, in statute of limitation disputes, the date of substantial completion is of a big deal to both parties. Different statute of limitations start to run from the date of substantial completion. Thus, each party will tend to endorse a specific substantial completion date that acts in its favor for the statute of limitation.

Table 10 Distribution of Dispute Instances across Cases

Dispute Case	Substantial Completion Definition	Liquidated Damages	Incentive Fees	Retention Money & Money Owed	Delays	Defects/ Breach of Contract/ Failure to Perform	Termination	Statute of Limitation
1		×						
2					×			
3		×						
4	×							
5		×						
6		×					×	
7		×						
8		×		×				
9		×		×				
10		×						
11		×						
12		×		×				
13		×				×		
14		×		×				
15		×				×	×	
16					×			
17		×						
18		×						
19		×						
20		×		×		×		
21								×
22								×
23						×		
24								×
25		×			×			
26				×		×		
27		×		×				
28		×					×	

Dispute Case	Substantial Completion Definition	Liquidated Damages	Incentive Fees	Retention Money & Money Owed	Delays	Defects/ Breach of Contract/ Failure to Perform	Termination	Statute of Limitation
29		×				×		
30				×		×		
31		×		×	×			
32						×		
33						×		
34		×						
35						×		
36								×
37								×
38	×							
39		×						
40							×	
41								×
42			×					
43	×							
44				×		×		
45								×
46		×		×		×		

An example case from the 46 studied is discussed below for each of the 8 circumstances extracted.

#### ***4.3.1 Substantial Completion Definition***

In case law number 4, “the real issues for the district court to determine were (1) what constituted substantial completion under the contract, and (2) when did substantial completion occur.” The contractor in this case states that substantial completion occurred when the owner started occupying the facility. However, the owner debates that when it started operating the waste water treatment plant the computerized control system has not been operational. The judges found out that although the owner started operating the facility, but the non-completion of the system did not allow for substantial completion certification. This was the case here, since the definition of work in the contract has specifically included completion of the computerized control system, and for substantial completion to be achieved the work needs to be complete negative any minor items. Thus, in such a case the substantial completion date was debated between the parties due to the miss-interpretation of the definition of work that shall be completed for certification. These types of cases show the importance of having a clear definition and understanding of the work required to achieve substantial completion in the contract. Thus, to avoid such a dispute parties must properly understand the definitions and requirements of the work and the substantial completion certification process in the contract.

#### ***4.3.2 Liquidated Damages***

According to case law number 1, “If the project was substantially complete by the contract deadline of April 28, 2000, then liquidated damages, as provided in the contract for each day beyond the completion day, could not be deducted from the final payment.” Here the parties have debated the date of substantial completion as a sole

factor that determines the date at which the levying of liquidated damages shall seize. Each party had its own view of when this date has occurred. The judges based their decision here on the different punch list items present at each debated date which may or may not have allowed certification. Cases like this show the importance of having a clearly defined and accepted punch list criteria or guidelines between the parties to understand when to apply for certification or when to certify.

#### ***4.3.3 Incentive Fees***

According to case law number 42, “This matter is before the Court on plaintiff’s declaratory judgment action. Plaintiff seeks a declaration that it is entitled to \$131,850.00 incentive fee under a construction contract between it and defendant, National Church Residences of St. Charles, Missouri (hereinafter referred to as National Church).” After clearly assessing when substantial completion has occurred, the judge declared that substantial completion has occurred too late for the contractor to get paid incentive fees. Here the judge agreed with the date certified by the architect for substantial completion achievement. The architect was found to have declared the date of substantial completion with no fraud and with transparency. Cases like this show the importance of having a proper determination of the date of substantial completion. The owner’s representative should be impartial and act in transparency when making his determination.

#### ***4.3.4 Retention Money and Money Owed***

According to case law number 9, the contractor has demanded its retention money and other money owed by the owner contending that substantial completion has



occurred and has been certified. However, although the work has been certified, the owner still did not release the retention money and does not want to release the retention, since the contractor is failing to make good some latent defects related to painting issues. Such a case also shows the importance of identifying the obligations of each party before and after certification to have a smooth process and avoid such disputes.

#### ***4.3.5 Delays***

According to case law number 2, a debate has risen based on “Whether appellant's completion of work beyond the substantial completion date is excusable due to delays beyond the control of appellant?” The court decided the date of substantial completion based on the punch list items remaining. Thus, the court determined the date of substantial completion and the amount of liquidated damages to be deducted.

#### ***4.3.6 Defects/ Breach of Contract/ Failure to Perform***

According to case law number 23, “The Purchaser argues (i).that practical completion of the Hotel by 30.June 1998 is a condition precedent to completion of the purchase; and (ii). That by "practical completion" cl.2.01 (b) means a state of affairs in which the Hotel has been completed free from any patent defects other than ones to be ignored as trifling. Disputing that, the Vendor submits that the Purchaser is barred from arguing for that meaning. And the Vendor argues (i).that practical completion is not a condition precedent to completion of the purchase; and (ii).that by "practical completion" cl.2.01 (b) means no more than a state of affairs in which the Hotel is capable of being opened for business even though works are still being continued.”

Thus, when the purchaser declined to complete the purchase, the vendor claimed he has breached the contract. The judgment is as follows, “The position reached is therefore as follows. Practical completion of the Hotel by 30.June 1998 to the standard of freedom from non-trifling patent defects was a condition precedent to completion of the purchase. The Vendor accepts that the Hotel was not free from such defects as at that date. Therefore, contrary to the judgments of the courts below holding that the Purchaser had repudiated the Sale Agreement, it was the Vendor who had done so. This was repudiation in the sense which Mr.Sumption described as “repudiation in the Chitty sense”. That description was a reference to the passage in Chitty on Contracts (29th.ed. 2004) Vol.1 at p.1243 para.21-015 which speaks of failure to perform by a stipulated time which is of the essence entitling the innocent party to terminate the contract and claim relief. For the foregoing reasons, I am of the view that the Purchaser's appeal must succeed.” Thus, this also shows that parties of a contract should always have a clear understanding of the contract and its different clauses which are related to substantial completion to avoid disputes related to such a date.

#### ***4.3.7 Termination***

According to case law number 15, “Plaintiff Construction Company’s right to proceed under a government construction contract was wrongfully terminated. Plaintiff sued for breach of contract and was granted summary judgment in the liability phase.” After the termination, plaintiff's surety has agreed with the owner to complete the project and has employed another contractor for this purpose. “By the time of completion there was an overrun of 518 days from the original contract completion date as extended, and plaintiff, being held responsible for such late completion because of its

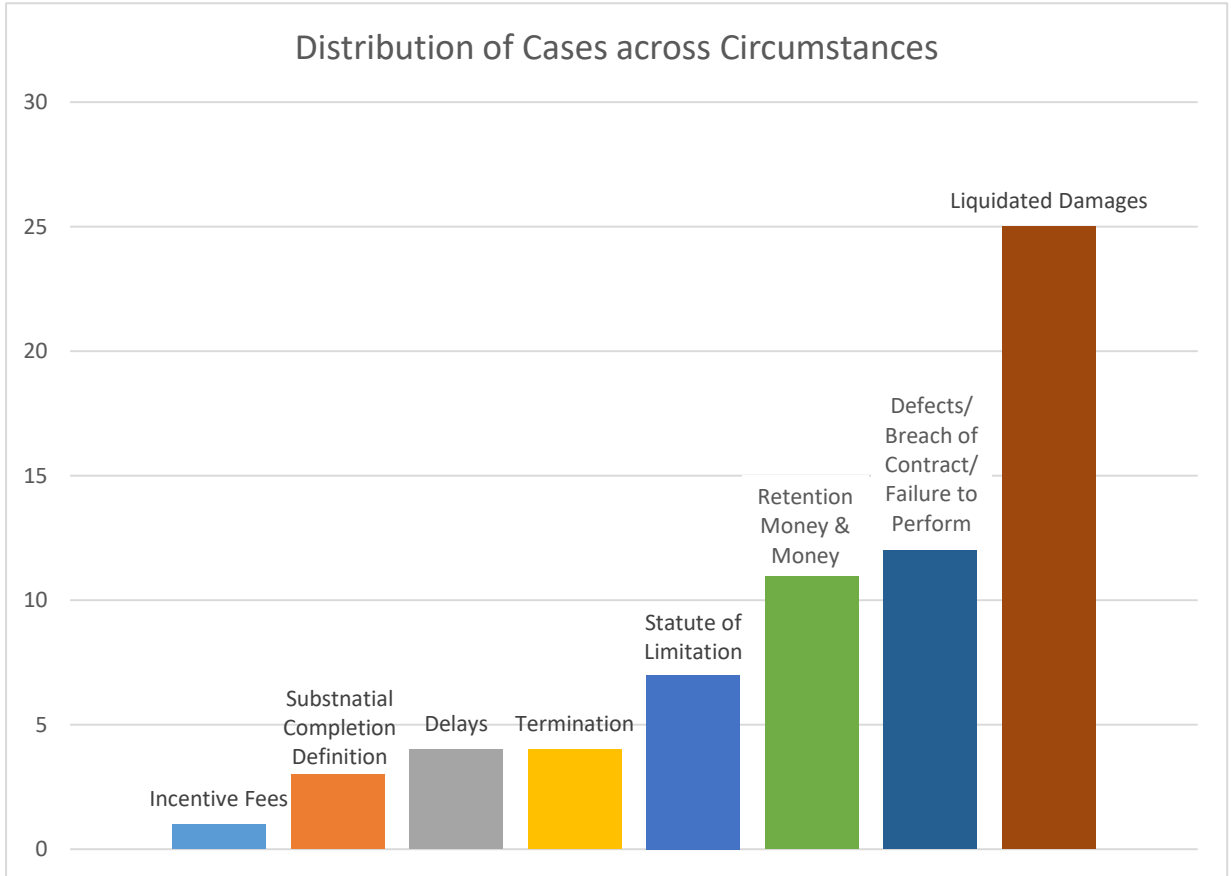
alleged default, was consequently assessed with liquidated damages in the amount of \$ 155,400 (\$ 300 per day) for the entire overrun. Such amount was withheld from moneys otherwise due plaintiff under the contract. The court held, however, that such assessment was unwarranted since the termination itself was improper.” The judges found that the owner has unjustifiably terminated the contract, since the delays faced by the contractor were excusable at that time. Substantial completion comes into play here since the owner is demanding to levy liquidated damages from the initial contractor whose contract has been terminated. However, due to the improper termination of its contract, the judges found that the terminated contractor would have substantially completed the work in much less time than the new contractor took to substantially complete. Therefore, it was found that it is not acceptable to levy this amount of damages from the initial contractor and it was important now to determine the date of substantial completion that would have been achieved by the initial contractor.

#### ***4.3.8 Statute of Limitation***

According to case law number 21, “Plaintiff filed an action against defendants for negligence, nuisance, and trespass on May 23, 2007, a date that was more than 10 years after the posting of the completion notice but less than 10 years after the issuance of the certificate of final occupancy.” Therefore, it was important for the court to determine when the date of substantial completion occurred and whether this date can be proven by the notice of completion, certificate of occupancy, or none to see if the statute of limitation has ended or not.

#### **4.4 Summary of Circumstances and their Inter-relations**

This subsection summarizes how the different dispute instances where substantial completion is debated are interrelated. This summary is based on how the different case laws studied include one or more of the different stated instances. Figure 9 shows the distribution of cases over the different instances or circumstances at which the date of substantial completion has been debated. It is important to state that the 8 instances stated can occur alone or at the same time with other circumstances. For example, the date of substantial completion will be debated in one case that includes claims for liquidated damages, retention, and delays. Thus, as seen in Figure 9, the total number of cases in the bar graph is more than 46. The most frequent dispute instance or circumstance is found to be related to liquidated damages, with 25 out of 46 cases including it. However, the least frequent dispute instance including only 1 case was found to be related to incentive fees.



*Figure 9 Distribution of Cases across Disputed Circumstances*

All cases related to incentive fees, substantial completion definition, or statute of limitation are not interrelated to any other circumstance. However, case laws related to liquidated damages, retention money & money owed, delays, defects or breach of contract or failure to perform, and termination can be interrelated in one way or another or can be present alone. The following relations are found:

- Case laws with liquidated damages, retention & money owed.
- Case laws with liquidated damages and delays.
- Case laws with liquidated damages, retention & money owed, and delays.
- Case laws with liquidated damages, retention & money owed, and defects, breach of contract or failure to perform.
- Case laws with liquidated damages and defects, breach of contract, or failure to perform.
- Case laws with liquidated damages and termination.

#### **4.5 Importance of this Chapter**

It is very important to conduct such an exercise of determining the dispute instances, circumstances, or reasons where the date of substantial completion is debated, since this will help the parties be more aware of the importance of smoothly certifying such a stage. The parties can determine the significance of the proper administration of the substantial completion certification stage from the previous problems others fell into and required the proper determination of the substantial completion date. Having the major and most frequent disputes that usually take place between the contractor and owner stated as circumstances in this chapter, such as liquidated damages and delay

disputes, puts a major red flag on the importance of clearly determining the substantial completion date. Thus, in the next chapter a framework to properly certify substantial completion will be determined. This framework will be built based on the different criteria utilized by courts to make their determinations in the previously studied case laws, and based on any criteria extracted from standard forms previously studied in chapter 2. Those criteria along with a model timeframe for substantial completion certification will be utilized in an attempt to generate a proper framework that allows the parties to properly administer the substantial completion certification stage.

## CHAPTER 5

# CRITERIA CRITICAL TO ACHIEVING SUBSTANTIAL COMPLETION

### 5.1 Preamble

In this chapter, different criteria that ensure the proper certification of substantial completion are derived out of the previous literature review conducted in chapter 2, of the different standard forms studied in chapter 3, and of the different case laws summarized in chapter 4. The criteria extracted in this chapter will form a basis for contractors to properly apply for certification and for owners to properly allow certification. In this chapter, a summary of the same case laws studied previously will be tabulated. However, the summary in this chapter is related to the different extracted criteria needed for certification, which are based on the judgments applied in the different case laws. Also, different criteria extracted from the standard forms and literature review which are needed for the proper certification of substantial completion are tabulated. The criteria extracted from all three sources are related to any prerequisites or steps to be carried before certification, and to acceptable or non-acceptable punch list items. Punch list items criteria play a major role and should be studied alone, because usually punch lists form a very debatable area and courts place a huge importance on them to determine the actual date of substantial completion.



## 5.2 Extracted Criteria from Studied Case Laws

Table 11 contains the different criteria that have been extracted from the case laws studied previously in chapter 4, and are related to punch list items or general steps to be performed before certification. The criteria were extracted from the judgements made in each case and these judgments are represented in the table of appendix A.

*Table 11 Extracted Criteria from Case Laws*

Case Number	Extracted Criteria
1	<ul style="list-style-type: none"> <li>• Punch List Criteria: Length is not a criterion.</li> <li>• Acceptable Punch List Items: Cosmetic items. Caulking. Removing debris. Repairing gaps. Reconfiguration of bird boxes. Repairing wavy fascia.</li> <li>• Non-acceptable Punch List Items: Roof installation. Siding installation. Attachment of fascia.</li> <li>• General Criteria: The generation of a punch list asserts SC achievement.</li> </ul>
2	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Anything that increases dirt. Anything that increases noise. Anything that increases congestion. Loss of heat in systems to be repaired. Pending approval of electrical work by city inspection.</li> </ul>

Case Number	Extracted Criteria
3	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Installing signs. Furnishing topsoil. Seeding. Permanent striping on roads. (Transportation Project)</li> <li>• Punch List Criteria: Cost of work remaining may be important.</li> </ul>
4	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Missing equipment. Incomplete structures and pipping. Pending testing and approvals of operational systems. Non-operation control system. Missing safety features.</li> <li>• General Criteria: Occupation of facility does not always assert SC. The interpretation of SC definition should not ignore the contractual definition of work.</li> </ul>
5	<ul style="list-style-type: none"> <li>• General Criteria: SC can be certified even if owner fails to timely inspect the building after the contractors request.</li> </ul>
6	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Un- completed wall and floor surfaces. Non-operating appliances, mechanical systems, and cabinetry. Final paint coat.</li> <li>• Punch List Criteria: Practical completion is only certified if punch list items are free from trifling patent defects</li> </ul>
7	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Construction works that precludes access to entrance.</li> <li>• General Criteria: Certificate of occupancy does not always ascertain the certification of SC.</li> </ul>
8	<ul style="list-style-type: none"> <li>• General Criteria: A certificate of occupancy was used as an indication to determine SC certification when a design consultant certification was present with it. A certification of SC by an architect can be negated by proof of fraud and bad faith.</li> </ul>
9	<ul style="list-style-type: none"> <li>• Acceptable Punch List Items: Repainting cisterns.</li> </ul>

Case Number	Extracted Criteria
	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Missing inspection by federal personnel.</li> <li>• General Criteria: A certification of SC by an architect can be negated by proof of fraud and bad faith. A certification by an entity other than the architect can certify and prove SC.</li> </ul>
10	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items Lack of handrails (requirement by federal code). Lack of air conditioning balancing report. Lack of fire marshal's certificate of occupancy.</li> </ul>
11	<ul style="list-style-type: none"> <li>• Acceptable Punch List Items: Maintenance work. Boiler house equipment.</li> <li>• Non-acceptable Punch List Items: Damaged or broken glass items. Damaged Plaster. Non removal of contractor equipment and unused materials. Un neat or unclean conditions of the premises.</li> </ul>
12	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Unclean and unsmooth rutted and scarred areas. Rebuilding stream and road crossing and damaged areas. Cleanup and restoration items.</li> <li>• General Criteria: Parties should look at the full contract and consider all its parts when determining the definition of completion.</li> </ul>
13	<ul style="list-style-type: none"> <li>• General Criteria: Certificate of occupancy determines substantial completion. In this case the building was being rented or occupied.</li> </ul>
14	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Missing water lines, pumps, and valves.</li> <li>• General Criteria: Occupation of facility does not always assert SC achievement.</li> </ul>
15	<ul style="list-style-type: none"> <li>• Acceptable Punch List Items: Interior and finishing work.</li> </ul>
16	<ul style="list-style-type: none"> <li>• Acceptable Punch List Items: Customization Work.</li> </ul>
17	<ul style="list-style-type: none"> <li>• General Criteria:</li> </ul>

Case Number	Extracted Criteria
	The need to properly and thoroughly draft SC related clauses (Several conflicting dates of substantial completion can be present in contract and one should be aware of them)
18	<ul style="list-style-type: none"> <li>General Criteria: An owner can accept a facility and still not recognize it as SC (did so that the percent on the interest of loan won't increase).</li> </ul>
19	<ul style="list-style-type: none"> <li>Non-acceptable Punch List Items: Uncompleted electrical works.</li> </ul>
20	<ul style="list-style-type: none"> <li>Non-acceptable Punch List Items: Non-operational systems.</li> </ul>
21	<ul style="list-style-type: none"> <li>General Criteria: Occupation of facility does not always assert SC achievement. Certificates of occupancy do not always ascertain SC achievement. Notice of completion does not have the same effect as SC certification.</li> </ul>
22	<ul style="list-style-type: none"> <li>General Criteria: The occupation of the facility does not always assert SC achievement.</li> </ul>
23	<ul style="list-style-type: none"> <li>Non-acceptable Punch List Items: Unachieved minimum fire resistance period.</li> <li>General Criteria: The generation of any punch list does not assert that SC is achieved. The occupation of the facility does not always assert that SC is achieved.</li> </ul>
24	<ul style="list-style-type: none"> <li>General Criteria: The generation of punch list does not always assert SC is achieved. A notice of completion does not have the same effect of a certificate of SC.</li> </ul>
25	<ul style="list-style-type: none"> <li>General Criteria: A certificate of occupancy indicates that SC is achieved (The contractual definition in this case of SC was changed to the issuance of certificate of occupancy).</li> </ul>
26	<ul style="list-style-type: none"> <li>Acceptable Punch List Items: Scratched Glass.</li> <li>Non-acceptable Punch List Items: Not installed water system. Not installed appliances. Structural inadequacy of frames and trusses. Problems in construction of piers and slabs. Structurally defective and inadequate slab.</li> </ul>
27	<ul style="list-style-type: none"> <li>General Criteria:</li> </ul>

Case Number	Extracted Criteria
	SC can be proved by something other than a certificate of SC (Here for example progress payment and delay claim was used to prove where in both instances it was said that SC was achieved).
28	<ul style="list-style-type: none"> <li>General Criteria: An owner can demand for a complete construction without even any minor defects to accept the work as complete.</li> </ul>
29	<ul style="list-style-type: none"> <li>General Criteria: Subcontractor does not have to wait for entire work to be certified as substantially complete but only his work.</li> </ul>
30	<ul style="list-style-type: none"> <li>Non-acceptable Punch List Items: Furnishing of the motel. Delivering Inn supplies.</li> <li>General Criteria SC does not require the contractor to remove from the premises all materials non-conforming with contract if they are accepted by owner.</li> </ul>
31	<ul style="list-style-type: none"> <li>Non-acceptable Punch List Items: Pending commissioning of the air conditioning system. Pending completion of gymnasium and subbasement.</li> </ul>
32	<ul style="list-style-type: none"> <li>General Criteria: The issuance of SC certificate denies the owner from calling on performance bonds for presence of patent defects.</li> </ul>
33	<ul style="list-style-type: none"> <li>General Criteria: Certificates of occupancy can indicate that SC is achieved.</li> </ul>
34	<ul style="list-style-type: none"> <li>Non-acceptable Punch List Items: Non-operational side or sides of a process basin. Missing computerized control system. Missing handrails and walkways.</li> <li>General Criteria: The interpretation of SC definition should not ignore the contractual definition of work.</li> </ul>
35	<ul style="list-style-type: none"> <li>Non-acceptable Punch List Items: Not fully functional water meter system.</li> </ul>
36	<ul style="list-style-type: none"> <li>Non-acceptable Punch List Items: Missing structural city inspection. Missing fire city inspection. Missing electrical city inspection. Missing residential unit appliances and flooring.</li> <li>General Criteria: Certificate of occupancy does not always assert that SC is achieved.</li> </ul>
37	<ul style="list-style-type: none"> <li>Non-acceptable Punch List Items:</li> </ul>

Case Number	Extracted Criteria
	<p>Lack of state fire marshal's approval of fire system.</p> <ul style="list-style-type: none"> <li>• General Criteria:</li> </ul> <p>The occupation of the facility does not always asserts SC is achieved.</p>
38	<ul style="list-style-type: none"> <li>• General Criteria:</li> </ul> <p>Courts can rely on the standard definition of SC to make their determination if SC is not defined in the contract.</p>
39	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items:</li> </ul> <p>Cracked flooring. Problems with HVAC system. Leaking gutters near electrical panels.</p> <ul style="list-style-type: none"> <li>• General Criteria:</li> </ul> <p>The occupation of the facility does not always assert SC is achieved.</p>
40	<ul style="list-style-type: none"> <li>• General Criteria:</li> </ul> <p>Owner can waive its right for substantial completion deadline and its right to terminate the contract on this basis, particularly in light of the contract provision that the substantial completion deadline "would be extended" to the extent of any delay caused by owner.</p>
41	<ul style="list-style-type: none"> <li>• Acceptable Punch List Items:</li> </ul> <p>Leaky roof.</p> <ul style="list-style-type: none"> <li>• General Criteria:</li> </ul> <p>Occupation of facility can assert that SC is achieved (Commencement of activities in church).</p>
42	<ul style="list-style-type: none"> <li>• General Criteria:</li> </ul> <p>Conflicting articles can be present in contract that require different entities to certify SC.</p>
43	<ul style="list-style-type: none"> <li>• General Criteria:</li> </ul> <p>Occupation of facility does not assert SC is achieved.</p>
44	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items:</li> </ul> <p>Not all required inspections are performed. Lack of cooking appliances, microwave, ventilator, and air conditioning system in houses. Non inspection of appliances. Non installation of bathroom fan venting. Missing joist hangers. Missing handrails that lead to the basement. Incomplete driveway.</p>
45	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items:</li> </ul> <p>Missing approval of facility plumbing.</p> <ul style="list-style-type: none"> <li>• General Criteria</li> </ul> <p>Certificate of occupancy can indicate that SC is achieved.</p>

Case Number	Extracted Criteria
46	<ul style="list-style-type: none"> <li>• Acceptable Punch List Items: Missing portion of amenities such as landscaping.</li> <li>• General Criteria: Certificate of occupancy does not always assert SC achievement. If no architect was present to certify SC as stated in the contract, the facility can still be substantially complete. The monetary value of work remaining is not a criteria to assert SC achievement.</li> </ul>

### 5.3 Extracted Criteria from Standard Contract Forms

Table 12 contains extracted criteria related to substantial completion certification and that have been published in standard contract forms. The different articles or clauses in the studied standard forms of contract have been scrutinized, and all related criteria needed for substantial completion certification, different from the certification process timeline already discussed in chapter 3, are extracted.

Table 12 Extracted Criteria from Standard Contract Forms

Standard Form	Extracted Criteria
FIDIC 2017	<ul style="list-style-type: none"> <li>• The Works shall be taken over by the Employer when:               <ul style="list-style-type: none"> <li>(a) the Works have been completed in accordance with the Contract, including the passing of the Tests on Completion;</li> <li>(b) if applicable, the Engineer has given (or is deemed to have given) a Notice of No-objection to the as-built records;</li> <li>(c) if applicable, the Engineer has given (or is deemed to have given) a Notice of No-objection to the operation and maintenance manuals;</li> <li>(d) if applicable, the Contractor has carried out the training as described; and</li> <li>(e) a Taking-Over Certificate for the Works has been issued, or is deemed to have been issued in accordance with this Sub-Clause.</li> </ul> </li> </ul>
AIA 2017	<ul style="list-style-type: none"> <li>• At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.</li> <li>• When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.</li> </ul>
Consensus Docs 2017	<ul style="list-style-type: none"> <li>• The issuance of a certificate of occupancy is not a prerequisite for Substantial Completion if the certificate of occupancy cannot be obtained due to factors beyond Constructor's control.</li> <li>• At the Completion of the Work, Constructor shall remove from the Worksite all construction equipment, tools, surplus materials, waste materials, and debris.</li> </ul>
EJCDC 2013	<ul style="list-style-type: none"> <li>• Cleaning: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.</li> <li>• Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor that the Work is acceptable.</li> <li>• Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.</li> </ul>
JCT 2009	<ul style="list-style-type: none"> <li>• In the performance of his duties, the architect wears two hats but not both at the same time. With respect to some of the duties, he acts as an agent of the employer. Any default by the architect in the performance of such duties may therefore be treated by the contractor as a default on the part of the employer. With other duties, the architect is an independent professional and the employer is not in breach of contract for defective performance of duties such as assessment of claims and quantification of the amount payable in certificates.</li> <li>• Architect must forthwith issue a Practical Completion Certificate when practical completion of the Works or Section has been achieved and the following conditions have been met:               <ul style="list-style-type: none"> <li>• the Contractor has complied sufficiently with his obligation to supply information requested by the CDM coordinator for compilation of the Health and Safety File and has ensured similar compliance by his sub-contractors;</li> </ul> </li> </ul>



Standard Form	Extracted Criteria
	<ul style="list-style-type: none"> <li>the Contractor has supplied the Employer with all as-built drawings and other information on the Contractor's Designed Portion.</li> </ul>

#### 5.4 Extracted Criteria from Literature Review Articles

Tables 13 and 14 are a summary of the different criteria needed for substantial completion certification extracted from several articles that have been read. Table 13 contains general criteria required to be performed before certification, and Table 14 contains criteria related to punch list items.

*Table 13 Extracted General Criteria from Literature Review*

Article	Extracted General Criteria
Frame, 2012	<ul style="list-style-type: none"> <li>Contractor has complied sufficiently with clauses 2.40 [supply of Contractor's Design Documents] and 3.25.4 [provision of information for the health and safety file].</li> </ul>
Dirik, 2006	<ul style="list-style-type: none"> <li>The whole of the Works or (b) any section... has been substantially completed and has satisfactorily passed any tests that may be prescribed by the Contract or by Statute.</li> <li>One could determine a project's intended use if it involves a manufacturing facility that requires performance tests to demonstrate that the facility is ready to produce. An office building may be ready for its intended use when issued a certificate of occupancy. The best practice for determining substantial completion is to include an express definition in the contract.</li> </ul>
Kadi, 1995	<ul style="list-style-type: none"> <li>Substantial completion will be found, and the assessment of liquidated damages will cease, when the percentage completed work remains within an "acceptable range" and the work serves the purpose of the contract.</li> </ul>
Abdul Nabi et al., 2020	<ul style="list-style-type: none"> <li>It should be noted that even after the certificate of substantial completion has been issued, it alone does not prove that substantial completion is satisfied. According to Thomas et al. (1995), courts do not look at a certificate as the sole factor in determining substantial completion. Rather, substantial completion is construed to be achieved whenever (1) the parties have fulfilled the contractual requirements and precedent conditions set by the DB contract, (2) the claimed defects or incomplete work items are minor, (3) there is no deviation in the work that defeats the purpose of the contract, (4) correction of defects is easy, and (5) the owner benefits from the work performed by the contractor.</li> <li>The DB contract stated that substantial completion would require that (1) the remaining punch list could be completed or corrected within 30 days of issuance of the certificate, (2) a temporary certificate of occupancy would have been issued for the designated portion of the work, and (3) 90% of the work would be complete for delivery to the owner (Comstock). It is important to note that</li> </ul>

Article	Extracted General Criteria
	a temporary certificate of occupancy is issued if an owner wants to occupy or use a portion of the work prior to full completion, provided that such occupancy is safe (OCALA 2020) .

Table 14 Extracted Punch List Criteria from Literature Review

Article Name	Extracted Punch List Criteria
CMS, 2002	<ul style="list-style-type: none"> <li>• Missing O&amp;M manuals.</li> <li>• Installation of ventilator and air conditioning system is unacceptable.</li> </ul>
Rogers et al., 2019	<ul style="list-style-type: none"> <li>• Work must not impede traffic flow.</li> <li>• Water pressurization system can be working at 80% capacity.</li> <li>• Cleanup, removal of erosion and sediment control devices can still be present.</li> <li>• Portion of the amenities can still be undone.</li> <li>• Fire protection systems shall be fully operational.</li> <li>• Signing, marking, guardrails, and illumination shall be present.</li> <li>• Curbs and sidewalks shall be present.</li> </ul>
Glover, 2019	<ul style="list-style-type: none"> <li>• Anything that compromises the health and safety of persons entering and/or occupying the Property.</li> <li>• Given their cumulative number and/or nature, have more than a trivial impact on the beneficial occupation and use of the Property for the intended purpose, by reason of their rectification or completion.</li> <li>• In relation to the work necessary to remedy them will cause interference or disruption to the beneficial use or occupation of the Property.</li> <li>• The Site has been substantially cleared of all temporary buildings, builders' plant and equipment, unused materials and rubbish and cleaned.</li> <li>• Any other stipulations or requirements which the Contract Documents indicate are to be complied with before Practical Completion have been complied with to the reasonable satisfaction of the Employer.</li> <li>• The relevant Statutory Requirements have been complied with and any necessary consents or approvals obtained.</li> <li>• All parts of the Works or services in a Section are fully functioning, and safe access to the Section (and associated plant areas required to operate the Section) through or around any other uncompleted sections can be secured on behalf of the Employer or any Tenant (including their contractors, sub-contractors, consultants, sub-consultants, suppliers and agents) in accordance with the access provisions set out in the relevant section of the Employer's Requirements.</li> <li>• Full testing and commissioning of the services installations has been completed satisfactorily and/or such testing or commissioning..."</li> </ul>
Crewdson, 2004	<ul style="list-style-type: none"> <li>• On a residential or hotel project, the idea of punch list work being performed in an occupied hotel room or apartment is unthinkable to the developer and the resident. If the owner cannot turn the hotel room or apartment over to the resident to be enjoyed without plumbers doing punch lists, then the project cannot generate revenue. Being able to "occupy" the project, or receiving a certificate of occupancy, has no relevance to this owner or developer.</li> </ul>
Gill, 2019	<ul style="list-style-type: none"> <li>• Sometimes the dimensions are critical.</li> </ul>
Kadi, 1995	<ul style="list-style-type: none"> <li>• The location of a facility and the time of the year when a contractor asserts that the government can enjoy beneficial occupancy of a facility can have a considerable impact on determining when a contract has been substantially performed.</li> </ul>

Article Name	Extracted Punch List Criteria
	<ul style="list-style-type: none"> <li>• Leaking roof cannot be present.</li> <li>• Fire protection systems shall be fully functional.</li> <li>• Installation of defective draft blowers is unacceptable.</li> </ul>
Ellis, 2013	<ul style="list-style-type: none"> <li>• Delivery of as built documentation can still be undone.</li> <li>• Seasonal Performance Testing can still be undone.</li> <li>• Administrative activities/ deliverables that don't impact the ability of the building and its systems to support the owners full occupancy and operational requirements can still be undone.</li> </ul>
Bennett, 2003	<ul style="list-style-type: none"> <li>• Fire protection system shall be fully operational.</li> <li>• Handicapped access shall be complete.</li> <li>• Touchups of defective paint is unacceptable.</li> <li>• Replacing malfunctioning motor.</li> </ul>
Bailey, 2011	<ul style="list-style-type: none"> <li>• Completing a deficient structure is unacceptable.</li> </ul>
Thomas et al., 1995	<ul style="list-style-type: none"> <li>• Installation of ventilator and air conditioning system is unacceptable.</li> <li>• Sanitization and testing of water line for pharmaceutical plant is unacceptable.</li> <li>• Unfinished Carpentry work.</li> </ul>

## **5.5 Importance of this Chapter**

The different criteria extracted from all the sources are used to build the framework presented in chapter 6 containing guidelines and a checklist that can help the parties properly administer the substantial completion certification stage. The generated framework will help the contractor better understand at what time he can properly apply for certification, and it will help the owner and his representative better certify this stage. With such an improved administration, the disputes that may arise and are of relation to such a stage can be avoided or largely reduced.

## CHAPTER 6

### A FRAMEWORK FOR SUBSTANTIAL/ PRACTICAL COMPLETION CERTIFICATION

#### **6.1 Preamble**

In this chapter, we propose a framework for streamlining the administration of the substantial completion stage. This framework will help the parties involved in a construction contract better administer the substantial completion certification stage in an attempt to reduce the different disputes that can arise from the poor administration of this stage, which can induce different additional costs on the parties.

#### **6.2 Recap of Dispute Instances Involving Substantial Completion**

The date of substantial completion certification can cause a lot of conflicts between the owner and contractor. Each party tends to preference a certain date for certification that will better serve its interests. Moreover, the owner's representative might at several instances avoid certification or wrongly certify it. Through analyzing different case laws with different disputes present in each, it has been found that courts need to know the actual date of substantial completion to make a proper determination or decision for resolving the dispute at hand.

In the different cases analyzed, the parties always insist on conflicting dates for when substantial completion has been certified. Thus, courts rely on their own analysis to determine the actual date of substantial completion of work. Courts base their determinations on the criteria that shall be present when certifying substantial completion, and on what is stated in the contract and should have been well known by

the parties at that time. Thus, the following generated framework will target these criteria, and prerequisites or obligations in order to help parties properly determine a dually acceptable substantial completion date that may help avoid different disputes.

### **6.3 Substantial/ Practical Completion Certification Framework**

In order to streamline the administration of the substantial completion stage, the following framework is developed based on the data extracted and inferred in chapters 3 and 5. This framework includes a model timeframe which is developed from comparing the timeframes previously developed and that embraces the best offered options from all standard forms of contract. Moreover, the framework includes certain guidelines or criteria needed to be known by parties when applying for certification or when certifying it. The framework also includes a checklist of items or questions that the parties should clearly know or understand throughout the projects life cycle to have a proper substantial certification process. This framework can act as a guide to be followed by the parties from the date of forming the contract till the date of certification.

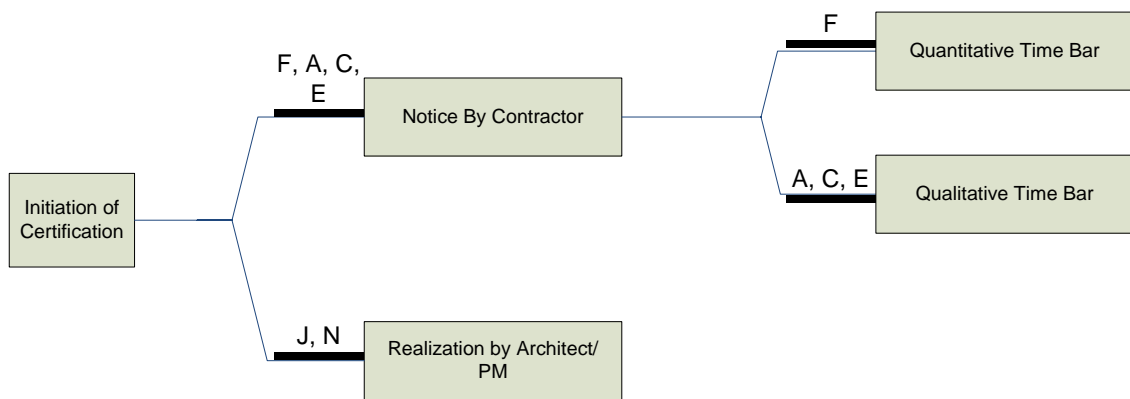
#### ***6.3.1 Model Timeframe Embracing the Best Offered by All Standards***

A comparison among the different standard contract forms for each step of the certification timelines is conducted in an attempt to construct a model timeframe that embraces the best alternatives offered by all the standards. Thus, in the following subsections the differences are discussed further. In all illustrations shown below, the following abbreviations are used:

- F: FIDIC 2017

- A: AIA 2017
- C: Consensus Docs 2017
- E: EJCDC 2013
- J: JCT 2009
- N: NEC 2013

### 6.3.1.1 Initiation of Certification Comparison among the Standard Contract Forms



*Figure 10 Initiation of Certification Comparison*

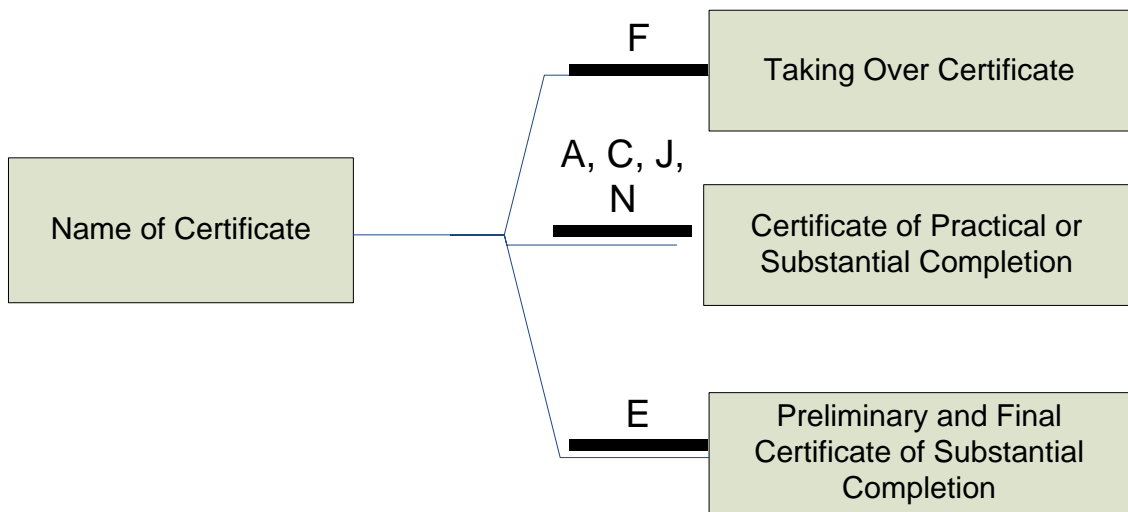
In this section the process of initiating substantial completion certification is compared between the different standard forms of contract. One would think that such a process is always initiated by the contractor who is actually on site and in control of work, so he is the one most aware of the progress. However, this is not the case in all standard contract forms as seen in Figure 10. The FIDIC, AIA, Consensus Docs, and EJCDC give the contractor the power to initiate the certification process or apply for certification by notifying the owners' representative that the work is or is to be complete. However, the JCT and NEC contract forms do not place the power of initiation in the hands of the contractor, they state that the owner's representative is the



one to realize or assess that substantial completion has been achieved with no application or notification submitted by the contractor.

Another difference that can be realized in this stage is that between the four standard forms of contract that allow the contractor to apply for certification, the FIDIC is the only standard that quantitatively sets the time bar through which the contractor shall notify. This limit is set as follows, “not more than 14 days before the Works will, in the Contractor's opinion, be complete and ready for taking over.” However, the AIA, Consensus Docs, and EJCDC qualitatively set this limit to “When” the contractor or constructor see the work to be substantially complete.

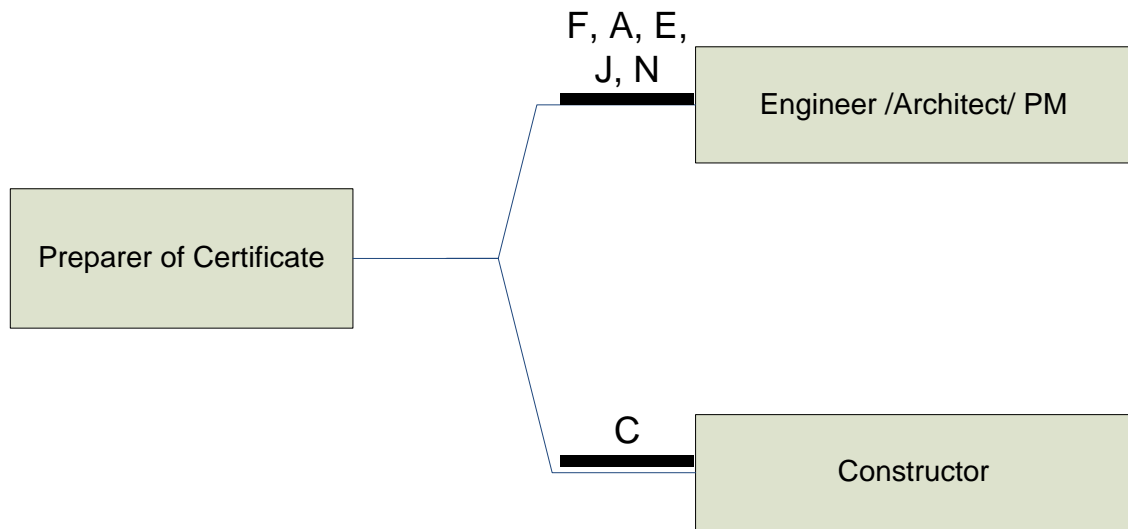
6.3.1.2 Substantial Completion Certification Comparison among the Standard Contract Forms



*Figure 11 Substantial Completion Certification Comparison (a)*

An initial difference related to the substantial completion certification step is that the name of the certificate differs among the standard forms of contract. As seen in Figure 11, the FIDIC calls it a Taking-Over Certificate. However, the AIA, Consensus

Docs, JCT, and NEC call it a Substantial or Practical Completion certificate. On the other hand, the major difference among the naming can be found in the EJCDC which has a two stepped certification process with a Preliminary and Final Substantial Completion Certificate. The Preliminary Certificate is developed into a Final Certificate only after the owner's approval.

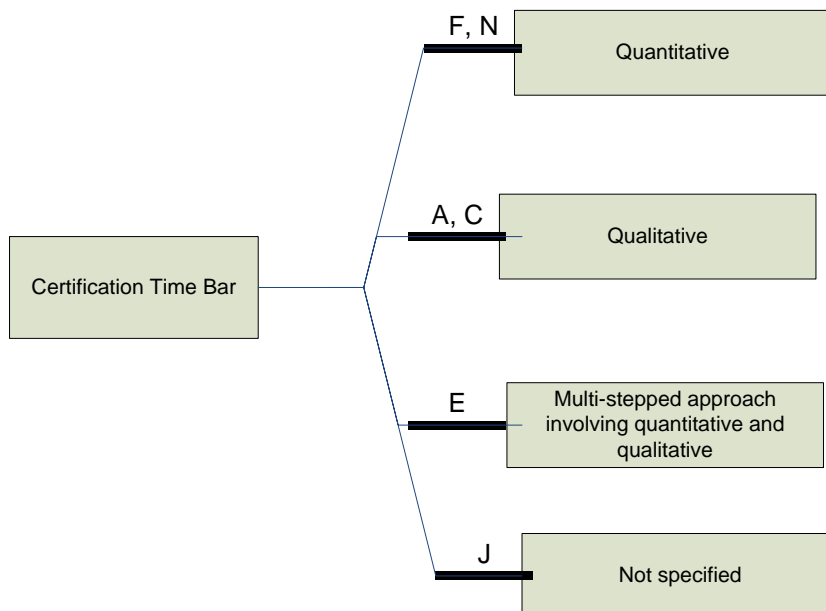


*Figure 12 Substantial Completion Certification Comparison (b)*

The second difference in the certification step is that the preparer of the certificate can either be the owner's representative or the constructor as seen in Figure 12. One would think that such a certificate is usually prepared by the owner's representative, but in the Consensus Docs the substantial completion certificate is prepared by the constructor and is submitted to the owner and his representative for their acceptance and certification. Thus, all certificates are of course issued by the Owner or his representative, but only in the Consensus Docs it's prepared by the Constructor.

Here another difference can be highlighted, which is whether it is explicitly mentioned in the standard form of contract that the substantial completion certificate is to be submitted to the owner or not. All standard forms require the acceptance of the

owner to issue this certificate, but some of them state it explicitly in the Clauses or Articles related to substantial completion and time bar it while others do not. The FIDIC, JCT, and NEC are the standard forms that do not have the explicit wording or timing for the submission and acceptance of the certificate by the owner. However, the AIA, Consensus Docs, and EJCDC explicitly state that the certificate shall be submitted to the owner for his acceptance, but still in those three standards the time bar for submission to the owner differs. The AIA and Consensus Docs do not set a time bar for submission to the owner, nor a time bar for his acceptance. However, in the EJCDC the submission to the owner and his acceptance are given a high priority through the treatment of the certificate as a preliminary one until submitted and accepted by the owner. This standard form of contract does not set a time bar for submission of the preliminary certificate to the owner, but sets a time bar for the owner's acceptance of the certificate.



*Figure 13 Substantial Completion Certification Comparison (c)*

Another main difference in the certification of substantial completion step is that the time bar given to the owner's representative or the owner to certify the works after their inspection differs. As seen in Figure 13, the FIDIC and NEC are the only two standard forms of contract that have a total quantitative time bar given to the representative to certify. In the FIDIC, the engineer is given "within 28 days after receiving the Contractor's Notice" to certify the works. However, in the NEC, the project manager certifies completion within one week of completion. Figure 13 also states that the AIA and Consensus Docs set a qualitative time bar for the owner's representative or owner to certify. In the AIA, "Upon" the notification of the contractor an inspection shall be conducted and the architect will certify if he finds work to be substantially complete. On the other hand, in the Consensus Docs, the owner "Shall promptly" inspect the work after the constructor's notification and accept the certificate if substantial completion has been achieved. Another branch seen in Figure 13 is the multi-stepped approach which involves both qualitative and quantitative time bars, and is found in the EJCDC. This time bar includes "Promptly" after the contractors' notification, an inspection shall be conducted to determine the work status and a preliminary certificate will be issued by Engineer to owner if substantial completion is achieved. The time bar then includes "Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate and attached punch list" and "If owner does not object to the provisions of the certificate, then Engineer will within 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion."

### 6.3.1.3 Payment after Substantial Completion Comparison among the Standard Contract

#### Forms

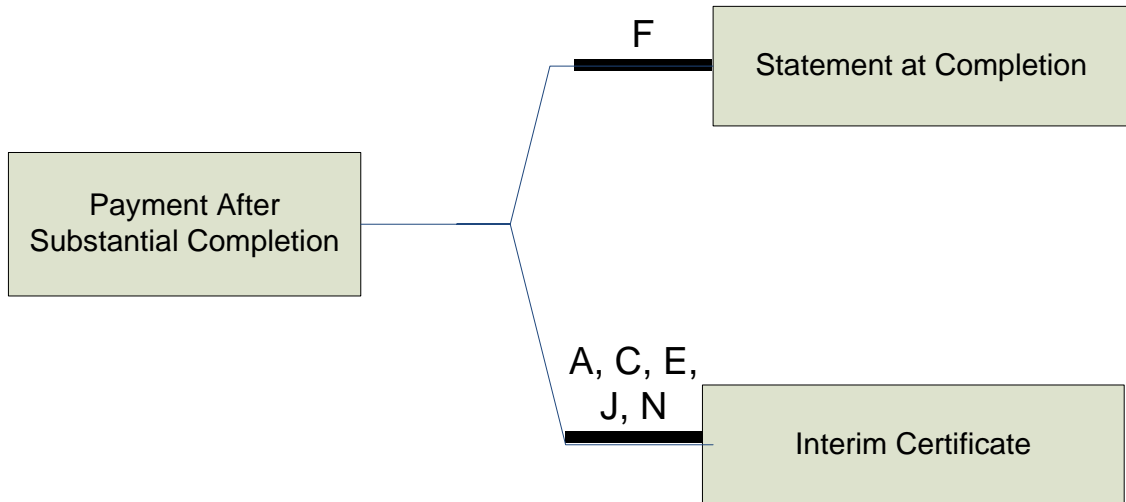


Figure 14 Payment after Substantial Completion Comparison

It is important to study the payment process after substantial completion, since a part of the retention will be released in this payment, which increases its importance. As a comparison of the payment application and its certification after substantial completion among the different standard forms of contract, it is important to see how each form will treat it. According to Figure 14, the only standard form that treats this payment application uniquely and differently from a regular interim application is the FIDIC. In the FIDIC, payment after substantial completion is based on a statement at completion submitted by the contractor, and certified by the engineer within a different time bar from a regular interim application found in the FIDIC. In addition to such a difference, all standard forms of contracts have different time bars provided for the submission of payment application, payment certification, and payment. This will be presented in the next subsection.

#### 6.3.1.4 Time Bars Comparison Summary

As stated in the previous subsections, the inferred timeframes differ among the standard forms of contract conditions studied. Table 15 summarizes the differences between the time bars of the different steps forming the timeframes. These time bars can either be quantitatively or qualitatively stated.

*Table 15 Time Bar Comparison of Standard Forms of Contract Conditions*

Time Bar	FIDIC 2017	AIA 2017	Consensus Docs 2017	EJCDC 2013	JCT 2009	NEC 2013
Application for Certification	≤ 14 days (From date of completion)	When Considered Complete	When Considered Complete	When Considered Complete	Not Stipulated	Not Stipulated
Certification	≤ 28 days (From notice date)	Upon (From notice date)	Promptly (From notice date)	Promptly/ ≤ 14 days (From notice date)	No Time Bar	≤ 1 week (From completion date)
Payment Application	≤ 84 days (From completion date)	≥ 10 days (From agreed payment date)	Monthly Application of Payment	≥ 20 days (From agreed payment date)	No application	On completion of work
Payment Certification	≤ 28 days (From application date)	≤ 7 days (From application date)	≤ 7 days (From application date)	≤ 10 days (From application date)	≤ 1 month (From completion date)	≤ 7 days (From application date)
Payment	≤ 28 days (From certificate date)	≥ 10 days (From certificate date)	Within Time provided in contract	≤ 15 days (From certificate date)	≤ 14 days (From certificate date)	≤ 2 weeks (From certificate date)

#### 6.3.1.5 Best Alternatives Deduced from Comparison of Standard Forms of Contracts

After performing the comparison among the different standard contract forms along the entire substantial completion certification timeline, the best alternative of each step is deduced, and is as follows.

Regarding the application step, the best option is found to be administered in the FIDIC 2017 standard form. First, from Figure 10, it is found that the initiation of certification is better done by the Contractor, since he is the one performing the work

and is better aware of its progress. Thus, he should be the one to first notice that substantial completion has been achieved, and then the owner's representative shall be given the ability to accept or reject this realization. Moreover, allowing the owner's representative to initiate this certification might act against the contractor's interests and rights, especially if the representative does not act impartially in making such a determination and withholds certification. Moreover, based on Figure 10, having a quantitative time bar for applying for certification is found to be better than having a qualitative time bar. This is an intuitive selection based solely on the fact that a quantitative time bar will set a limit rather than keeping this step's timing open for speculations.

Regarding the second step where substantial completion is to be certified, it can be best administered based on a combination of options from different standard forms of contract. First, from Figure 11, the EJCDC is chosen as a best option due to the presence of a two-step certification process including a preliminary and final certificate of substantial completion. Such a certification process explicitly asks to show the owner the certificate for his acceptance, and time bars it. However, a problem with such an administration in the EJCDC is that, according to Figure 12, the EJCDC does not provide a fully quantitative time bar for certification. Instead, it has a multi-stepped approach that sets a qualitative time bar from when the engineer inspects the work until he produces a preliminary certificate and sends it to the owner, but provides a quantitative time bar for the owner to object or accept and the engineer to present the final certificate after. Thus, according to Figure 12, the FIDIC or NEC can be chosen to fill this qualitative gap from inspection (or notification) until the production of certificate. The FIDIC and NEC both provide a quantitative time bar for certification

from notification or assessment date. In the FIDIC the engineer shall within 28 days from the notification of the contractor issue the substantial completion certificate. However, in the NEC, the project manager has to certify practical completion within 1 week from the date of completion. The FIDIC is chosen here to fill the qualitative gap because it provides a time bar from the date of the notice given by the contractor unlike the NEC which provides a time bar from the certified completion date. Thus, if the NEC is chosen we will still have a time gap from when the contractor sees the work complete until the date of completion is certified. So, based on this combination, the owner's representative will have  $\leq 1$  week from when he sees the work to have been complete to submit the preliminary certificate to the owner, the owner will then have  $\leq 7$  days to accept or object the certificate, and the engineer will have  $\leq 7$  days to submit the final certificate.

Also, regarding payment application after substantial completion, two different best options can be studied. The first option is based on what the FIDIC has to offer at the payment application stage after substantial completion. Here we can say that by giving the contractor more time than a regular interim application to submit the payment application after substantial completion, the contractor will be able to include a larger number of completed items in the application and get paid more. However, another best offer can be thought of which is based on what the NEC has to offer regarding payment application. The NEC allows the project manager to assess money due at the date of completion and during this assessment the project manager considers any application submitted on the assessment date or before. Thus, this option will allow the contractor to apply for payment at the same day of completion especially if he is in a hurry to get paid. Although these two approaches might be thought of, but it has been



found that the first option is better. This is realized because the FIDIC states that the statement at completion shall be submitted within 84 days from the completion date. Thus, a contractor who might want to include the largest amount of payment to be certified can wait until those 84 days have passed, but a contractor who wants to certify the payment as fast as possible can directly submit the application on completion.

Finally, regarding payment certification and payment after substantial completion, the best options are chosen solely based on the time bars given for these two steps in the standard contract forms. According to Table 15, the AIA or Consensus Docs or NEC, and the JCT or NEC were chosen respectively for the two steps. For payment certification both the AIA and Consensus Docs provide the least amount of time ( $\leq 7$  days from application date) for the owners' representative to certify the payment. However, for payment the JCT provides the least amount of time ( $\leq 14$  days from certification date) for the owner to make his payment. Therefore, Figure 15, shows the model timeframe created based on the previously held analysis.

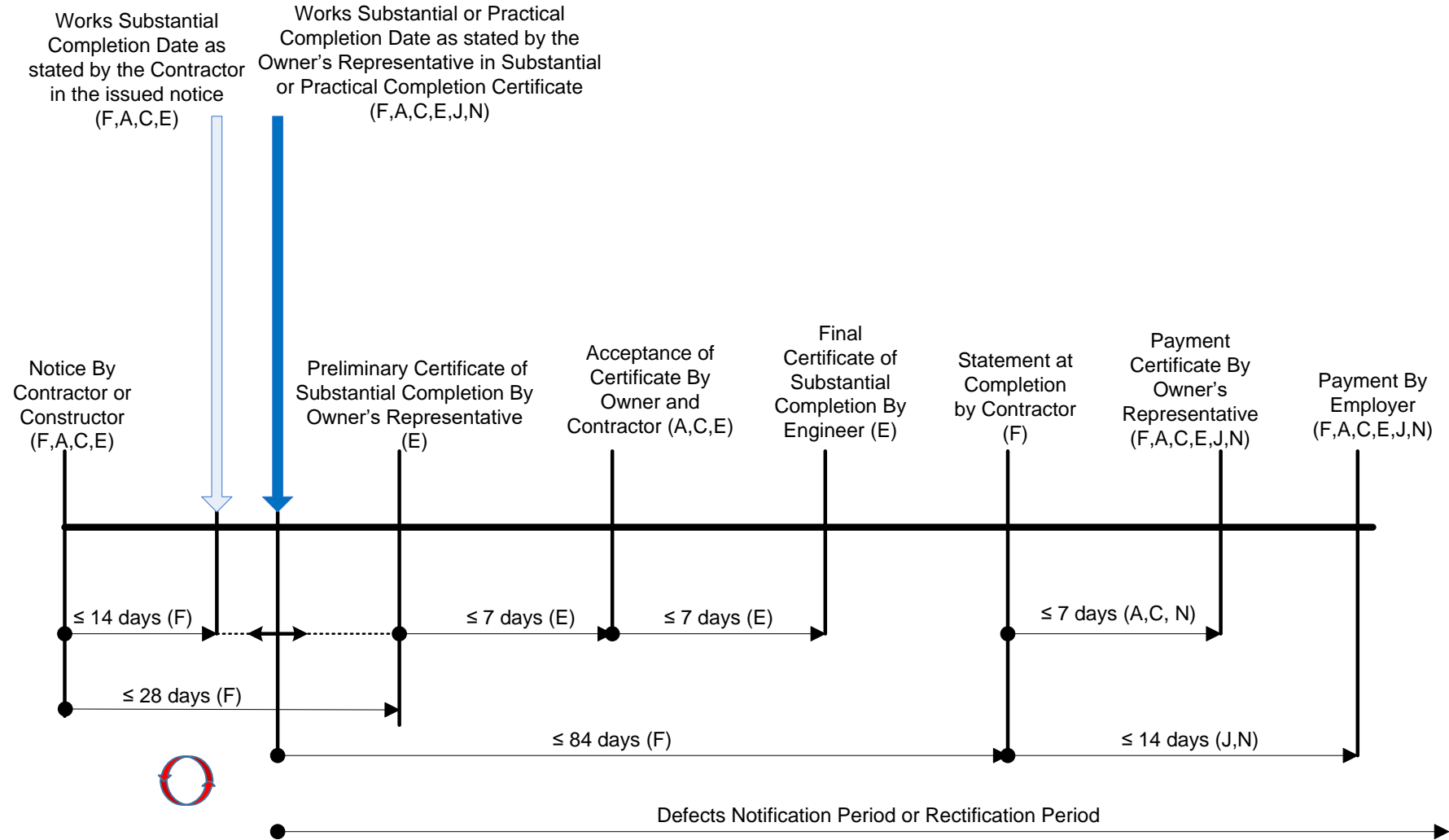


Figure 15 Generated Model Substantial Completion Certification Timeframe

### ***6.3.2 Substantial/ Practical Completion Certification Guidelines***

In this section a list of criteria for the proper certification of substantial completion and that shall be properly known by parties are stated. The criteria include general criteria that should be followed by the parties and are related to substantial completion certification, and certain punch list criteria. The punch list criteria include acceptable and non-acceptable punch list items that can help the parties better develop their punch list for the contractor to timely apply for certification and for the owner to properly certify it.

#### **6.3.2.1 General Substantial/ Practical Completion Certification Criteria**

Both contractor and owner shall understand the following criteria to know what is to be submitted or done before certification:

- Contractor has supplied the contractor's design documents and provision of information for the health and safety file.
- The whole of the Works or any section has satisfactorily passed any tests and commissioning that may be prescribed by the Contract or by Statute.
- It should be noted that even after the certificate of substantial completion has been issued, it alone does not prove that substantial completion is satisfied. Rather, substantial completion is construed to be achieved whenever (1) the parties have fulfilled the contractual requirements and precedent conditions set by the contract, (2) the claimed defects or incomplete work items are minor, (3) there is no deviation in the work that defeats the purpose of the contract, (4) correction of defects is easy, and (5) the owner benefits from the work performed by the contractor.

- The relevant Statutory Requirements have been complied with and any necessary consents or approvals obtained.

Both contractor and owner shall understand the following criteria to know what can constitute certification and when it is to be done:

- The best practice for determining substantial completion is to include an express definition in the contract.
- One could determine a project's intended use if it involves a manufacturing facility that requires performance tests to demonstrate that the facility is ready to produce or an office building may be ready for its intended use when issued a certificate of occupancy.
- Substantial completion will be found, and the assessment of liquidated damages will cease, when the percentage completed work remains within an "acceptable range" and the work serves the purpose of the contract.
- The issuance of a certificate of occupancy is not a prerequisite for Substantial Completion if the certificate of occupancy cannot be obtained due to factors beyond Constructor's control.
- The location of a facility and the time of the year when a contractor asserts that the government can enjoy beneficial occupancy of a facility can have a considerable impact on determining when a contract has been substantially performed.
- At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

#### 6.3.2.2 Punch List Criteria for Substantial/ Practical Completion Certification

The parties of the contract can look at Table 16 that summarizes a list of acceptable and non-acceptable punch list items. The contractor needs to shy away from applying for certification if any of the following non-acceptable items is still incomplete. Moreover, the owner and his representative shall reject certification if any of the non-acceptable items are present. In addition to the items summarized in Table 16, the following list of general criteria related to punch list formulation should be understood by the parties:

- Any work given their cumulative number and/or nature, have more than a trivial impact on the beneficial occupation and use of the Property for the intended purpose, by reason of their rectification or completion are not acceptable in a punch list.
- All parts of the Works or services in a Section must be fully functioning, and safe access to the Section (and associated plant areas required to operate the Section) through or around any other uncompleted sections can be secured on behalf of the Employer or any Tenant (including their contractors, sub-contractors, consultants, sub-consultants, suppliers and agents) in accordance with the access provisions set out in the relevant section of the Employer's Requirements.
- Length is not a criterion of punch list preparation (Repetitive items might be present).
- Cost of work remaining is not a criterion for punch list preparation or for proving the achievement of substantial completion.

Table 16 Acceptable and Non-Acceptable Punch List Items

Acceptable Items	Non-Acceptable Items							
	Safety Features	Structural Instability	Utility Tasks	Finishing Tasks	Restoring/Reconfiguration Tasks	Approvals/Inspection Tasks	Cleaning Tasks	Furnishing
<ul style="list-style-type: none"> <li>• Cosmetic Items.</li> <li>• Caulking.</li> <li>• Removing Debris.</li> <li>• Repairing Gaps.</li> <li>• Reconfiguration of Bird Boxes.</li> <li>• Repainting Cisterns.</li> <li>• Maintenance Work.</li> <li>• Boiler House Equipment.</li> <li>• Interior and finishing work.</li> <li>• Customization work.</li> <li>• Scratching of glass.</li> <li>• Portion of amenities such as landscaping.</li> <li>• Water pressurization system working at 80% capacity.</li> <li>• Cleanup, removal of erosion and sediment control devices.</li> <li>• Delivery of as built documentation.</li> <li>• Seasonal performance testing.</li> </ul>	<ul style="list-style-type: none"> <li>• An item that compromises the health and safety of persons entering and/or occupying the Property is not acceptable.</li> <li>• Installation of handrails and walkways (requirement by fire code).</li> <li>• Leaking gutters near electrical panel.</li> <li>• Leaking roof.</li> <li>• Installing joist hangers.</li> <li>• Fire protection systems.</li> <li>• Handicapped access.</li> <li>• All necessary signage, striping, guardrails, and illumination.</li> <li>• Curbs and sidewalks.</li> </ul>	<ul style="list-style-type: none"> <li>• Structural inadequacy of frames and trusses.</li> <li>• Structurally defective and inadequate slabs and piers.</li> <li>• Completing the deficient structure.</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of Heat.</li> <li>• Installation of water lines, pumps, and valves.</li> <li>• Completion of electrical work.</li> <li>• Installation of computerized control system.</li> <li>• Installation of house cooking appliances, microwave.</li> <li>• Installation of ventilator and air conditioning system.</li> <li>• Installation of bathroom fan venting.</li> <li>• Sanitization and testing of water line for pharmaceutical plant.</li> </ul>	<ul style="list-style-type: none"> <li>• An item that increases dirt, noise, or congestion is not acceptable.</li> <li>• Work that impedes traffic flow in transportation projects is not acceptable.</li> <li>• Roof construction.</li> <li>• Siding Installation.</li> <li>• Attachment of fascia.</li> <li>• Furnishing topsoil.</li> <li>• Seeding.</li> <li>• Finishing structures.</li> <li>• Completion of wall and floor surfaces.</li> <li>• Final coat of paint.</li> <li>• Construction work that precludes access to entrance.</li> <li>• Completion of gymnasium and subbasement.</li> <li>• Completing the driveway.</li> </ul>	<ul style="list-style-type: none"> <li>• Miss placed or non-placed equipment.</li> <li>• Nonoperational Control system.</li> <li>• Nonoperational appliances, mechanical systems and cabinetry.</li> <li>• Damaged or broken glass Items replacement.</li> <li>• Damaged plaster replacement.</li> <li>• Cleaning or smoothing all rutted and scarred area.</li> <li>• Rebuilding stream and road crossings and damaged areas.</li> <li>• Nonoperational sides of the process basin.</li> <li>• Not fully functional water meter system.</li> <li>• Cracked flooring.</li> <li>• Problems with HVAC system.</li> </ul>	<ul style="list-style-type: none"> <li>• Pending approval of electrical work by city inspection.</li> <li>• Pending testing and approval of operational items or systems.</li> <li>• Pending inspection by federal personnel.</li> <li>• Fire marshal's certificate of occupancy.</li> <li>• Air conditioning balance report.</li> <li>• Not meeting minimum fire resistance period.</li> <li>• Commissioning of air conditioning system.</li> <li>• Structural city inspection.</li> </ul>	<ul style="list-style-type: none"> <li>• Removing all equipment and unused material.</li> <li>• Cleanup and restoration items.</li> </ul>	<ul style="list-style-type: none"> <li>• On a residential or hotel project, the idea of punch list work being performed in an occupied hotel room or apartment is unthinkable to the developer and the resident.</li> <li>• Furnishing of the motel.</li> <li>• Delivering inn supplies.</li> </ul>

Acceptable Items	Non-Acceptable Items							
	Safety Features	Structural Instability	Utility Tasks	Finishing Tasks	Restoring/ Reconfiguration Tasks	Approvals/Inspection Tasks	Cleaning Tasks	Furnishing
<ul style="list-style-type: none"> <li>Administrative activities/ deliverables that don't impact the ability of the building and its systems to support the owner's full occupancy and operational requirements.</li> </ul>				<ul style="list-style-type: none"> <li>Carpentry work.</li> </ul>	<ul style="list-style-type: none"> <li>Touchup defective paint.</li> <li>Replacing malfunctioning motor.</li> <li>Installation of defective draft blowers.</li> </ul>	<ul style="list-style-type: none"> <li>Fire city inspection.</li> <li>Electrical city inspection.</li> <li>Approval of fire systems by state fire Marshall.</li> <li>Required inspections to be performed.</li> <li>Appliances inspection.</li> <li>Approval for facility plumbing.</li> </ul>		

### ***6.3.3 Substantial/ Practical Completion Certification Checklist***

In addition to the previously shown model substantial completion certification timeframe and the guidelines which show different criteria to be known by the parties, a checklist presented in Table 17 is formed to guide the parties and make them understand more the certification process. This checklist contains a number of criteria that can help parties determine if substantial completion has been achieved or not especially in the absence of a substantial completion certificate. Those criteria revolve around other certificates or instances that can prove or negate the certification of substantial completion. If the parties move along this checklist while certifying or before they might be able to reduce a number of disputes that could arise later on.



Table 17 Substantial Completion Certification Checklist

Substantial Completion Certification Questions	Answer
Does the generation of any Punch list always assert that SC is achieved?	No, punch list should be free from patent defects, only minor defects are acceptable.
Does the occupation of the facility always assert that SC is achieved?	No
Should the interpretation of SC definition ignore the contractual definition of "work"?	No
Is SC only achieved after the owner inspects the building and releases a punch list?	No, the owner might not respond to the contractor's request for inspection.
Do certificates or temporary certificates of occupancy indicate that SC was achieved?	No, In most Cases Yes if, <ul style="list-style-type: none"> <li>• A design consultant certification similar in its criteria with SC certification was present.</li> <li>• The building was being rented.</li> <li>• The contractual definition of SC was changed to include the issuance of certificate of occupancy.</li> <li>• SC certification was missing the date.</li> </ul>
Can a certification of SC by an architect be negated by proof of fraud or bad faith?	Yes
Can one dispute the determination of SC by an architect without proving fraud and mistake?	Yes, where the construction contract itself fails to provide that the engineer's determination of completion should be final and conclusive, fraud and mistake need not to be proven to dispute the determination of completion.
Can a certification by an entity other than the architect certify and prove SC?	Yes, such as certification of occupancy by federal personnel.
Should one only look at the definition of construction completion in the contract?	No
Can several dates of SC be present in the contract?	Yes, conflicting contractual clauses can be present.
Can an owner accept the facility, but still not recognize it as SC?	Yes, he might do so that the percent on the interest of the loan won't increase.
Does a notice of completion have the same effect of a certificate of SC?	No
Is it important that the contractor notifies when he thinks SC is achieved if required in contract?	Yes
Can something other than a certificate of SC prove SC?	Yes, it can be stated in progress payments or delay claims.
Can an owner demand for a complete construction with no defects even minor rather than a SC construction with minor defects?	Yes, it might be stated that in the completion of the works that all works need to be done with no defects.
Does the issuance of SC certificates deny the owner from calling on performance bonds for the presence of patent defects?	Yes
If substantial completion is not defined in the contract can courts rely on the standard definition of SC?	Yes
Can there be conflicting articles in the contract through which different entities are required to certify SC?	Yes
If no architect was present to certify SC as stated in the contract, does this render the facility not substantially complete?	No
Do courts place a large weight on the presence of SC certificate in determining cases?	No, weight of a certificate is as great as specified in the agreement, and the language of the certificate controls the scope of certification.
Can SC be achieved when certain major items were said to be omitted by owner expressly or by conduct?	Yes

## CHAPTER 7

### SUMMARY AND CONCLUSIONS

#### **7.1 Summary**

In summary and based on the analysis performed in this research, the substantial/ practical completion certification is a major milestone in any construction project. It is the phase where the project is said to have been complete minus few minor defects that will not impede the ability of the owner to benefit from the facility. At such a stage different important shifts in power can occur in the project. The owner will no longer have the right to levy liquidated damages from the contractor, and he will return part of the retention money. Moreover, the owner can take over the facility and the contractor can only be present on site to complete minor punch list items and any latent defects noticed later in the defects and notification period. Thus, failure to certify substantial completion can lead to an increase in costs and loss in revenues for both parties, which makes such a milestone very significant. However, with such an important milestone comes a lot of trouble and disagreements between the parties.

With no proper administration process available for such a stage, parties tend to fall into disputes related to the date of substantial completion of the works. Different standard forms of contract tend to define substantial completion and timeframe its certification process; however, no standard form of contract has yet set grounded criteria or guidelines that can be followed by parties to ensure a trouble-less certification process. The main problem that is usually faced through the certification process is that punch list items and any pre-requisite of certification are understood differently by each

party especially that each party may tend to make its own interpretations of the criteria in a way that best suits its intentions and stance. Thus, as an owner's representative in charge of such certification, he might need certain dually approved criteria and guidelines to base his impartial certification decision on.

A literature review has been initially conducted through this research to point out the importance of the substantial completion stage with the significance of the different events triggered by the achievement or failure of achieving this stage. Moreover, the literature review sheds light on the importance of clearly defining and administering any stage in a contract while addressing the different interests and actions taken by the parties through the duration of the contract. This helped extract the problem currently being faced in construction contracts regarding the certification of substantial/ practical completion of the work.

The second part of this research addresses the substantial completion certification process and its definition across different standard forms of contract. The standard forms of contract under study are FIDIC 2017, AIA 2017, Consensus Docs 2017, EJCDC 2013, JCT 2009, and NEC 2013. Through studying how each standard form of contract defines substantial completion, a general definition of substantial completion has been built that acts as an enlarged definition including all sentences extracted from the different standard definitions. This enlarged definition was generated in an attempt to avoid any misinterpretations with regard to substantial completion definition that can rise when dealing with the different standard contract forms on different projects. Another outcome of this part is the construction and differentiation of the substantial completion certification timelines among the standard forms of contract.

This also helped build an all-encompassing certification timeline that incorporates the different steps extracted from all the standard forms of contract.

The third part of this research includes an analysis of different case laws emphasizing on any disputes or claims faced by parties of a contract where the date of substantial/ practical completion certification is at the center of such a debate. The importance of conducting such a case law review was to extract the different instances at which the date of substantial completion certification is debated to emphasize the importance of properly administering this stage in an attempt to avoid such disputes. Moreover, from this case law review, the judgments provided have been used to see how courts are able to decide on the correct date of substantial completion of the works. These judgements are usually based on the contract at hand, the pre-requisites of the certification, and the acceptability of punch list items.

Based on the three previous analyses done, a framework is developed that can be followed by the parties during the certification process and at contract formation time to ensure the proper administration of the substantial/ practical completion process in an attempt to reduce the disagreements arising from such a stage. This framework includes a model timeframe for substantial completion certification that embraces the best offered by all standard contract forms, which may help parties properly time and initiate this process if followed. Moreover, the framework includes different guidelines needed for certification, which include general criteria and punch list criteria needed for proper certification. Finally, the framework also includes a checklist of general questions to be known by the parties for a better understanding and administration of such a stage from the time the contract is formed and until certification.

## 7.2 Conclusions

The following is a list of the conclusions determined from this research:

1. The lack of a proper and streamlined substantial/ practical completion certification process has caused a lot of disagreements related to its certification. Each party tends to insist on a substantial completion date at the instance that most fits its own intentions.

2. The date of substantial/ practical completion is highly related to liquidated damages and delay cases, retention money cases, defects and breach of contract cases, termination cases, and statute of limitation cases. By having a large number of major dispute instances through which such a date is debated, the importance of having a common determination of this date is recognized. Especially that such disputes are of the most probable ones faced in any construction project.

3. The administration of substantial/ practical completion stage has a lot of differences among the FIDIC, AIA, Consensus Docs, EJCDC, JCT, and NEC. The different certification steps and payment after certification steps differ in their essence and in their time bars among the different standard forms of contract.

4. Having a model framework that embraces the best time barring of each step for certification in the timeline, and that ensures that the most important steps are present and are initiated by the party most capable and understandable of such an initiation is part of having a properly administered substantial completion certification stage.

5. Certain criteria related to acceptable and non-acceptable punch list items, and general pre-requisites for substantial completion certification are highly relied on by courts in their determinations of the date of substantial/ practical completion

certification. Thus, it is very important to standardize such criteria and understand them for proper administration of the substantial/ practical completion certification stage.

6. The process of streamlining the administration of substantial/ practical completion is not only dependent on the acceptable and unacceptable criteria for certification, and on the certification process timeline, but it is also dependent on the different inter-related clauses in the contract. The parties should properly build their contract and properly address the issue of substantial/ practical completion in it to have a smooth and dually acceptable certification process at later stages.

### **7.3 Recommendations**

The following is to be recommended based on this study,

1. Both the owner along with the contractor should have a proper understanding of the certification of substantial/ practical completion stage and all its consequences.

2. The parties should ensure that the contract properly addresses and administers the substantial/ practical completion certification stage, and avoid any ambiguity that can stem and is related to such a stage. Any party can take advantage of such ambiguities to alter the certification process for their own advantages.

3. The parties should give more care and due diligence to the punch lists prepared to avoid any disputes that may arise at later stages and are related to the certification process.

4. The best alternative timeframe can be used to benefit both parties. It is there to ensure that the interests of both the owner and contractor are served by developing the timeframe from the best practices to be followed in a construction project. The

timeframe makes sure that each step is initiated or certified by the party most capable and most aware of making the action.

5. The best alternative timeframe can be used by the contractor to negotiate his terms of contract. It can help him prove that the best or common practice in the construction industry is for the contractor to initiate the substantial/ practical completion certification process. Moreover, it can help him prove that shorter time bars are acceptable and can be used along the different steps of the certification timeframe based on the different time bar ranges deduced from the different standard forms of contract.

6. The best alternative timeframe can be used to make sure that the owner's acceptance or rejection of the substantial/ practical completion certificate is explicitly stated. Thus, if an owner uses such a timeframe in the conditions of the contract he will ensure that he has a final say in substantial/ practical completion certification. He will be fully aware of the punch list prepared and of the quality of the construction in place before certifying substantial/ practical completion.

7. Through including the best alternative timeframe in the conditions of contract, the contractor will see that the time bars along it are well studied. No time bar is left open ended or qualitatively set, and the time bars are the shortest ones provided by different standard contract forms. Thus, this streamlined timeframe will have a positive effect on the contractor's risk analysis. This will not only increase the capability of the contractor in accepting the contract, but it will also ensure a lower pricing by the contractor. Therefore, both parties will benefit from such a contract in place.

8. The owner's representative should act impartially while certifying substantial/ practical completion taking into consideration the different criteria needed for certification and keeping in mind the importance of such a stage.

9. The streamlined framework produced is useful to anyone who wants to debate the issue of substantial/ practical completion, it can help test the strength and weakness of any case related in question. It can be used by an expert evaluating whether there are enough strength in a case or not to take it to adjudication or arbitration.

#### **7.4 Limitations**

Certain limitations were encountered in this research. This research is based heavily on case law analysis and analysis of standard contract forms. One limitation faced was the lack of adequate case laws related to substantial completion certification in non-traditional contract forms. Case laws that include for example Design-Build or PPP's or even more contemporary approaches such as IPD were hard to find. Thus, the research is mainly focused on the traditional design-bid-build approach and the substantial completion certification process in it.

Moreover, there was no association between the case laws studied and the standard forms of contracts. It is not easy to find the type of contract which was used in the different case laws. Thus, this association was not done and the framework produced has a model timeframe solely extracted from standard forms of contracts and has guidelines and checklists that are mainly focused on the type of project at hand and not on the type of contract used.



In addition, to produce the framework the research did not focus on subcontracting and its relation to substantial completion. As this is a study or field by its own and can add a lot of complications to be addressed alone.

## **7.5 Future Work**

Future research may focus more on investigating the developed framework across non-traditional contracts and not only across the traditional contracts. Moreover, further work may be done to classify extracted guidelines and criteria across different project types and between general contracting and subcontracting. This may be important because different types of projects may allow for or reject different criteria and guidelines.

In addition, more research can be done across the built timelines and the generated model timeframe. This research may aim at identifying any additional stage to be added for certification, and if the time bars provided by contracts can be improved or not.

Furthermore, it was stated that an owner's representative generated substantial completion certificate can be negated by proof of fraud. This shows that the owner's representative is to act impartially when determining substantial completion and when generating the certificate. Thus, more research is to be done to see how to ensure the impartiality of the owner's representative in determining this stage of completion.

Also, more research can be done to determine a fixed time allowable for the completion of a punch list in relation with the type of project at hand. In addition, some guidelines to ensure the applicability of this allowable time shall be studied. This may be important to ensure that the time for completion of punch lists is not left open ended.

## APPENDIX

The following table presents the judgments extracted from the different case laws studied. These judgments were used to deduce different criteria used by the judges to determine when substantial completion was achieved or can be achieved.

Case Number	Judgment Extracted From Case Law	Extracted Criteria
1	<p>Having reviewed the testimony and exhibits introduced into evidence, we cannot conclude that the trial court was clearly wrong or manifestly erroneous in finding that ASC achieved substantial completion by the contract date of April 28, 2000. The record establishes that the majority of the work had been performed on time. ASC had roofed the buildings and installed the siding by the contract deadline. The punch lists show that there were deficiencies in the work that required correction. However, the existence of defects does not necessarily preclude a finding of substantial completion. The length of the punch lists generated by Duvall was largely due to the number of buildings. A separate list was prepared for each of the 28 buildings, and these lists included many repetitive items needing attention. Most items listed were cosmetic in nature, such as caulking, removing debris, and repairing gaps. The major items were reconfiguration of the bird boxes and repair of the wavy fascia. Review of Duvall's inspection reports show no mention of any dissatisfaction with the birdboxes even though siding had been installed on almost half the buildings by March 20, 2000. There was also conflicting evidence presented by the parties as to the cause of the wavy fascia. Even with the need for these repairs, the buildings were able to be used by MHA and were in fact occupied by tenants during the construction process. There was also some testimony that ASC repaired some damage to the siding caused by tenants during the time that it was working to complete the punch lists.</p>	<ul style="list-style-type: none"> <li>• Punch List Criteria: Length is not a criterion.</li> <li>• Acceptable Punch List Items: Cosmetic items. Caulking. Removing debris. Repairing gaps. Reconfiguration of bird boxes. Repairing wavy fascia.</li> <li>• Non-acceptable Punch List Items: Roof installation. Siding installation. Attachment of fascia.</li> <li>• General Criteria: The generation of a punch list asserts SC achievement.</li> </ul>
2	<p>1) The trial court applied that test to the facts before it and concluded that the liquidated damages clause was valid and enforceable. It found that damages could flow from increased dirt, noise, and congestion due to construction; loss of heat from the building; and decreased attendance and collection of contributions, as testified to by the minister of the church. 2) The trial court found that Mt. Olivet failed to timely supply information to Mid-State regarding [*16] two of the three areas of work under the contract. Mt. Olivet failed, until November 6, 1981, to supply color selections affecting essentially</p>	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Anything that increases dirt. Anything that increases noise. Anything that increases congestion.</li> </ul>

Case Number	Judgment Extracted From Case Law	Extracted Criteria
	all items to be installed in the women's restroom; and failed, until late January of 1982, to provide critical dimensions required to complete work in the chancel area.	Loss of heat in systems to be repaired. Pending approval of electrical work by city inspection.
3	Through this holding, we do not intend to prohibit the doctrine of substantial performance from ever applying in a liquidated damages case. There could be a case where the work remaining on a contracted project was so trivial that assessing the entire liquidated amount would result in gross unfairness. However, this is not such a case. Although the majority of the Young project was completed, the evidence demonstrates that certain, significant items were left undone. The site still required signs, topsoil, permanent striping, seeding, and other warm-weather landscaping. Even Reliance admits that approximately \$ 350,000 worth of work remained on the project after the October 25 completion date. During this delay, UDOT incurred reasonable overhead expenses as a direct result of Young's tardiness. There is nothing grossly unfair about assessing the entire amount of liquidated damages in this case.	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Installing signs. Furnishing topsoil. Seeding. Permanent striping on roads. (Transportation Project)</li> <li>• Punch List Criteria: Cost of work remaining may be important.</li> </ul>
4	Carrothers' interpretation of the definition of substantial completion ignores the contractual definition of "work." Carrothers also ignores that the contract documents specifically provided for the engineer to determine when the work was sufficiently completed. Under the contract documents, the definition of substantial completion directly incorporated the definition of work. The definition of work specifically included completion of the computerized control system. The computerized control system was not completed by November 10, 2003. Although the City was operating the new plant by that date, the City employees operated the plant manually while waiting for Carrothers to complete the control system. MKEC determined that Carrothers did not substantially complete the control system and other safety features until January 12, 2004. Thus, under the plain language of the contract and the undisputed facts set forth in the parties' motions for summary judgment, Carrothers did not achieve substantial completion of the contract until January 12, 2004. Accordingly, the district court did not err in determining this was the date of substantial completion. As previously indicated, the parties do not dispute the date of final completion was January 13, 2004. Accordingly, the City is entitled to liquidated damages up to and including these dates provided that the liquidated damages clause in the contract does not constitute a penalty.	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Missing equipment. Incomplete structures and pipping. Pending testing and approvals of operational systems. Non-operation control system. Missing safety features.</li> <li>• General Criteria: Occupation of facility does not always assert SC. The interpretation of SC definition should not ignore the contractual definition of work.</li> </ul>
5	Trinity requested substantial completion with its payment application for the period ending July 31, 2011. Trinity again requested substantial completion on September 8, 2011, in an email from Randy Baldwin to Dan Schmitt, and again on September 15, 2011, via email. In spite of the request, Defendants did not conduct an inspection until November 8, 2011. As a result of Defendants' delay in responding to the request for substantial completion, Trinity was unable to timely address any alleged deficiencies. Defendants, based upon their belief that liquidated damages were justified, withheld \$210,050.00 in alleged liquidated damages. However, Defendants failed to offer a mathematical basis, even at the trial of the case, for the	<ul style="list-style-type: none"> <li>• General Criteria: SC can be certified even if owner fails to timely inspect the building after the contractors request.</li> </ul>

Case Number	Judgment Extracted From Case Law	Extracted Criteria
	calculation of the figure of \$210,050.00 as liquidated damages. Thus, the Court finds the withholding of such damages based on the alleged failure to achieve substantial completion, to be unsupported by the evidence. Specifically, the Court finds that \$1,049,011.63 in damages for the contract balance, for schedule-delay and for work scope to be justified.	
6	Paragraph 9(a) clarified that "substantial completion" meant the Unit would be "in a broom clean and otherwise habitable condition," excluding minor adjustments and matters. By way of illustration, this meant that the Unit would have fully completed wall and floor surfaces, operating appliances, mechanical systems, and cabinetry. Reading paragraph 9(a) together with 10(a), in light of the contract as a whole, it is clear the parties intended that the Unit was to be ready, fully constructed, completed, habitable, and closed on by January 1, 2010. That is, the parties contemplated that fall 2009 was the projected date the deal was to be complete, with January 1, 2010, serving as the outlying deadline. This conclusion is buttressed by the contract's "time is of the essence" clause, which signifies the parties intended the contract to be performed as soon as possible. Having clarified the terms of the contract, we next address whether construction was in fact delayed beyond January 1, 2010. We find that the record clearly evinces that it was. Walton's own representative, John Shipka, for all intents and purposes, admitted that the Unit was not complete or habitable until after the January 1 deadline when he stated during his deposition: "I don't recall exactly when it [(the Unit)] was completed, when we received our last certificate of occupancy," which was in March 2010. Walton also admitted trim was installed in the Unit in January 2010, and it was then ready for a final coat of paint. The notice of closing also was not sent until well after the January deadline.	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Un- completed wall and floor surfaces. Non-operating appliances, mechanical systems, and cabinetry. Final paint coat.</li> <li>• Punch List Criteria: Practical completion is only certified if punch list items are free from trifling patent defects</li> </ul>
7	The Appellate Division looked at a number of factors in reaching a decision on the substantial completion issue. First, it reviewed evidence of construction conditions around the casino entrance during the fall of 1984 that precluded access to the casino and prevented "beneficial use" of the entrance. Second, it noted that the concrete steps leading to the new entrance had to be repoured during the fall. Based on those factors the court found that "there is evidence from which the arbitrators could conclude Perini did not complete the job as required by the contract until December 1984, well beyond the projected completion time of the end of May 1984." We have verified the various transcript references that refer to the condition of the property after September 15, 1984. For example, William Weidner testified that as of Thanksgiving 1984, Sands "had a full-fledged disaster on [its] hands." Also, the lighted, glass-enclosed elevator, which was visible from the boardwalk and was part of the new park entrance, was not completed and operational until late November 1984. Similarly, Perini's work on the glass facade at the vehicle entrance on Indiana Avenue continued through the fall. Perini often had trucks and/or cranes parked on Indiana Avenue adjacent to or in the new entrance. Thus, it appears, as Sands argues, that although it was able to occupy the new park entrance in the fall while the renovation work continued, it greatly detracted from the building's appearance, obstructed customer access, disrupted operations, and contributed to Sands's loss of business.	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Construction works that precludes access to entrance.</li> <li>• General Criteria: Certificate of occupancy does not always ascertain the certification of SC.</li> </ul>
8	The certifications were signed under oath by the architect and the Board and were dated April 14 and 15, 2003. The certifications further averred that: "A. The essential requirements of the Contracts have been fully performed so that the purpose of the Contracts is accomplished. B. The Punch list has been created.	<ul style="list-style-type: none"> <li>• General Criteria: A certificate of occupancy was used as an indication to determine SC certification when a design</li> </ul>

Case Number	Judgment Extracted From Case Law	Extracted Criteria
	<p>C. There are no important or material omissions or technical defects or deficiencies regarding the School Facilities Project.  D. The temporary certificate of occupancy, continued use or completion has been issued.  E. The School Facilities Project is ready for occupancy in accordance with its intended purpose."  The language of the EDA certification tracks the language of substantial completion in the contracts. Thus, the architect—and the Board, for that matter—at one point declared Contract 1A substantially complete well before the dates that the Board now asserts. This change in position supports the circuit court's finding that the architect acted arbitrarily with regard to the Certificate of Substantial Completion. Further, the architect's arbitrary conduct as to Contract 1A undermines the integrity of the architect's date of substantial completion for Contract 1B. Without a reliable architect's certificate of substantial completion, the circuit court properly referred to the temporary certificates of occupancy (TCOs), which can be an appropriate benchmark for substantial completion. (where architect's certificate of substantial completion was deficient, TCO marked substantial completion where it indicated that the building was sufficiently complete so it could be occupied and used) Because the Board could use the buildings for teaching children, it was not an abuse of discretion for the court to find that the buildings were substantially complete in September 2002 under the TCOs. The Board notes that the TCOs state that handrails still had to be completed, but we are not persuaded that handrails were more than a punch list item. The TCOs were sufficient for beneficial occupancy, as the Board was able to use the schools when the TCOs were issued. Further, the New Jersey Administrative Code provides that a TCO will issue "when the work covered by the permit shall have been substantially completed." N.J. Admin. Code § 5:23-2.23(g) (2018). Thus, substantial completion is a prerequisite for a TCO and it was not an error for the circuit court to refer to the TCOs in support of its conclusion.</p>	<p>consultant certification was present with it.</p> <p>A certification of SC by an architect can be negated by proof of fraud and bad faith.</p>
9	<p>I must conclude that it occurred, not on October 19, 1973 as certified by the supervising architect, but on December 10, 1973 as certified by the Chief Underwriter of the FHA. I reach this conclusion for two reasons. First, the governing construction contract so provides. See, fn. 14, Supra. Plaintiff contends that where administrative delays account for a time lapse between the date certified by the supervising architect and the date of verification thereof by FHA officials, it would be unfair to penalize contractor for the same. However, no such evidence of administrative delay was introduced at trial. Furthermore, it is reasonable to assume that administrative delays are foreseeable and that it is anticipated, by the parties to the construction contract, that the building contractor will attempt to achieve substantial completion prior to the last day permitted for the same under the construction contract. My second reason for deeming December 10, 1973 as the date of substantial completion stems from the identity of interest between the supervising architect and Mursor Builders. The FHA determination to increase the escrow retention tenfold over the supervising architect's recommendation is indicative of the necessity for an independent determination by government authorities of the extent of work completion. Given the relationship between Frederick and Murphy, I am extremely reluctant to place much credence in the former's representations.</p>	<ul style="list-style-type: none"> <li>• Acceptable Punch List Items: Repainting cisterns.</li> <li>• Non-acceptable Punch List Items: Missing inspection by federal personnel.</li> <li>• General Criteria: A certification of SC by an architect can be negated by proof of fraud and bad faith. A certification by an entity other than the architect can certify and prove SC.</li> </ul>
10	<p>2) The trial court held that O &amp; M's defective workmanship was not the cause of the paneling not adhering to the walls of the recital hall and refused to allow the State to withhold the \$ 5,881 contract price for repairs by Blanc. This portion of the</p>	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items</li> </ul>

Case Number	Judgment Extracted From Case Law	Extracted Criteria
	<p>judgment was not appealed by the State and is now final. The trial court, however, did not discuss the amount withheld by the State for emergency repairs to the paneling by Miremont. Since the trial court found that the problem with the paneling was not caused by O &amp; M's workmanship, it should have refused to allow the State to withhold the amount of the Miremont contract, \$ 978.07. The judgment will be amended to award O &amp; M \$ 978.07. The trial court found that the plans required an eleven foot ceiling height in the organ room and that O &amp; M completed the room with a ceiling height of less than eleven feet. The trial court did not decide if an error existed with MSC's plans but found that O &amp; M failed to notify MSC prior to relocating the duct work. It found that O &amp; M was responsible for the defect in the organ room ceiling and the State was entitled to withhold funds for the remedial work. The trial court found that the specifications called for number 8 coarse aggregate for the exposed aggregate walkways and entrance, but that O &amp; M poured concrete with the wrong aggregate size. The trial court also found that it was O &amp; M's responsibility to inquire of MSC if it did not understand the specifications and it was not free to do as it wished. In essence, the trial court found O &amp; M's exposed aggregate defective for not complying with specifications and allowed the State to withhold the cost of replacement.</p>	<p>Lack of handrails (requirement by federal code). Lack of air conditioning balancing report. Lack of fire marshal's certificate of occupancy.</p>
11	<p>Before any building or the work as a whole is turned over to the Government the contractor shall at his own cost replace any broken or damaged glass, patch any damaged plaster, and make good any other similar damage or injury to the work or buildings and shall leave the buildings, premises, and work in a perfect state of repair. The contractor shall as directed during the progress of the work remove and properly dispose of the resultant dirt and debris. Upon completion of the work he shall remove all equipment and unused materials provided for the work, and put the premises in a neat and clean condition, and do all cleaning and washing required by the specifications. Finding 51 shows that the work had been 99% complete since September 25, 1936; that it was 99.6% complete on December 30, as of which day liquidated damages began, and that the only work remaining to be done had to do with the boiler house equipment, and certain "punch list items" which are usually minor adjustments which recur for an indefinite time after the completion of an extensive building project. The boiler house work would, apparently, not have interfered with the occupancy of the houses by tenants, and tenants in new houses expect to be troubled for a while by adjustments due to tests.</p>	<ul style="list-style-type: none"> <li>• Acceptable Punch List Items: Maintenance work. Boiler house equipment.</li> <li>• Non-acceptable Punch List Items: Damaged or broken glass items. Damaged Plaster. Non removal of contractor equipment and unused materials. Un neat or unclean conditions of the premises.</li> </ul>
12	<p>First, the unambiguous definition of completion of construction includes full performance of all Hutton's obligations, other than those specifically excluded. Restoration or cleanup are not specifically excluded. Moreover, the "Particular Undertakings of the Bidder" section of the Contract provides that "prior to completion of construction, [Hutton] shall clean and smooth all rutted and scarred areas, rebuild stream and road crossings and damaged areas as directed by the [City]." Finally, the Court notes that Hutton's contention that the "sequence of construction" should be determinative of the construction completion date is nonsensical in that the last step in the sequence of construction is "Construct Line C to Industrial Park." The Contract's "specifications for line construction," includes a provision regarding restoration, which states: [Hutton] shall have a continuous cleanup program throughout construction. [Hutton] shall restore the land that is crossed to its original condition. This restoration includes the removal of deep ruts and the disposal of foreign objects such as stumps or chunks of concrete. It also includes smoothing and reseeding damaged vegetation similar to the original, cleaning out gullies and restoring terraces. Roads existing prior to construction shall be restored to equal or better than their original</p>	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Unclean and unsmooth rutted and scarred areas. Rebuilding stream and road crossing and damaged areas. Cleanup and restoration items.</li> <li>• General Criteria: Parties should look at the full contract and consider all its parts</li> </ul>

Case Number	Judgment Extracted From Case Law	Extracted Criteria
	<p>condition. It is uncontroverted that as of April 16, 2001, Hutton had much restoration and cleanup work yet to complete. The inspection report dated April 16, 2001 and provided to Hutton on April 20, 2001, listed two pages of items that still needed to be completed including, inter alia: repairing and seeding lose ground; picking up roots, wood chunks and trash piles, filling in ruts on the roadways and in ditches; and coating and repairing barbed wire. On May 4, 2001, Hutton certified that it had completed all restoration identified in the April 16 inspection. However, on November 28, 2001, over six months later, Mr. McNabb sent Hutton a letter indicating that certain cleanup items had yet to be completed. The parties again corresponded about restoration and cleanup work on January 21, 2002, when Hutton informed Mr. McNabb that it assumed all work had been completed since it had not heard from him after two phone calls. Additional inspections were apparently completed on January 8, 2002 and January 28, 2002. On March 25, 2002, Mr. McNabb faxed Hutton "another copy" of the January 2002 inspection lists. Hutton requested meetings with the City by way of letters sent April 26, 2002, and June 28, 2002. It was not until July 25, 2002, that Mr. McNabb provided close out documents to Hutton. As is clear from this summary regarding restoration and the communication between the parties, controverted facts remain regarding the exact date the construction was completed. Hutton has presented some evidence that all restoration work was completed on May 4, 2001. On the other hand, the City suggests that restoration and cleanup work was still uncompleted in March of 2002. Although the Contract provides that the Certificate of Completion "shall be the sole and conclusive evidence as to the date of Completion of Construction," neither party has informed the Court what date appears in the Certificate of Completion, or provided the Court with a copy. The Court finds that the date of construction completion is disputed; therefore, summary judgment may not be granted on this issue.</p>	<p>when determining the definition of completion.</p>
13	<p>Evidence that the occupancy permit was issued February 11, 1994, coupled with the fact that the Averys began to rent the building out soon thereafter, supports a finding that, as of that date, the Averys were able to use the building for its intended purpose. Moreover, the Averys' ability to rent the building soon after February 11, 1994 indicates that the remaining deficiencies in the building were not so grave so as to deprive them of the benefit they reasonably expected to receive under the contract. Finally, at the point the occupancy permit was issued, the deficiencies in BM Co.'s performance were capable of being adequately remedied by monetary compensation. In view of the foregoing facts, we hold that the trial court's finding that the work was substantially completed on February 11, 1994 was not clearly erroneous. Accordingly, we find that the trial court did not err in granting JNOV in favor of BM Co., reducing the jury's award of liquidated damages.</p>	<ul style="list-style-type: none"> <li>• General Criteria: Certificate of occupancy determines substantial completion. In this case the building was being rented or occupied.</li> </ul>
14	<p>In considering the issue raised by the Water District in regard to liquidated damages we need not consider the question of whether the engineer was guilty of fraud, misconduct or such gross mistake as would imply bad faith or failure to exercise an honest judgment in refusing to issue a certificate of completion for the reason that the judgment of the trial court and the Court of Civil Appeals denying such damages may be affirmed upon the ground that where an owner occupies a building before it is completed, a provision for liquidated damages on account of delay in its completion applies only from the time the building should have been completed to the date of occupancy.</p>	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Missing water lines, pumps, and valves.</li> <li>• General Criteria: Occupation of facility does not always assert SC achievement.</li> </ul>

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15	<p>On the parties' motions for summary judgment, grounded on an enormous administrative record, 2 the court, on March 14, 1969, concluded that the termination was improper. 187 Ct. Cl. 45, 408 F.2d 424. The court held that the termination could not validly be based upon a contract "Termination for Default" clause authorizing a termination for the contractor's failure to prosecute the work with such diligence as would insure its completion within the time specified in the contract. This was so because, had plaintiff been granted an extension of time, to which the court held it was entitled (contrary to the agency determination), plaintiff would not, as of the termination date, have been behind time, or at least would not then have been behind to such a degree as would have warranted a default termination. This extension-of-time dispute involved a critical nationwide cement shortage which occurred shortly after construction operations seriously affected plaintiff's progress. The extended time required by Stewart to complete due to: (a) The many problems of job startup and coordination to be overcome by a successor contractor coming on a job just over the midpoint of construction progress (finding 10(c)); (b) The delay in construction due to removal of the roof cants, thereby leaving the building exposed to adverse weather (finding 11(a)(3)(a)); (c) Delay due to renegotiation with subcontractors [***95] and suppliers; and (d) Delay due to revised performance schedules imposed by certain subcontractors. For instance, the ceramic veneer tile did not arrive until January 8, 1958 (finding 11(a) (3) (c)). Shelving, originally scheduled by Stewart's subcontractor to arrive in June 1957, did not arrive until November 1957. Although the project was accepted as substantially complete on February 10, 1958, the VA monthly reports reflect Stewart accomplished zero percent of work in January 1958 and only one percent during December 1957. This lack of progress reflects the inability of Stewart to obtain subcontract performance in accordance with the subcontractor's original obligations to Hedin. On the basis of (a) the application of the costs estimated in plaintiff's bid estimate to the amount of work remaining to be accomplished as of the termination date, and (b) a June 1, 1957 completion date, the record establishes that, had there been no termination, plaintiff's completion costs would have amounted to \$848,131.99.</p>	<ul style="list-style-type: none"> <li>• Acceptable Punch List Items: Interior and finishing work.</li> </ul>
16	<p>It is true that a great deal of the work changes related to "customization". It is also true that many of the Change Orders bore dates as late as June of 1968. There is substantial evidence, however, that most of the work reflected by these Change Orders had been completed prior to date of their execution. Kromer, who was employed by Ratner, issued Construction Progress Estimates. He testified that the building was 97.3 percent completed on May 31, 1968, and 98.3 percent completed on June 30, 1968. There [**13] is a great deal of evidence of delay in execution of the Change Orders by the Owner and the interim lending institutions. There were unexplained delays on the part of the Owner relating to approval of Change Orders, selections of customization items such as ceramic tile, fixtures and accessories, color selections, etc. These delays did in fact change the scope of the work. Indecision on the part of the Owner with respect to tenant paint color selections was such, as early as July or August of 1967 that painters were moving from one floor to another in the building, completely out of program sequence. Some important work had to be re-done because the original plans and specifications did not comply with city codes.</p>	<ul style="list-style-type: none"> <li>• Acceptable Punch List Items: Customization Work.</li> </ul>
17	<p>The trial court correctly concluded that the contractual provisions for completion of performance were ambiguous and thus subject to judicial construction. The evidence is clear that Herbert &amp; Brooner commenced work on the project in April of 1969, about one month before the execution of the formal contract, on the strength of defendant Golden's letter of promise</p>	<ul style="list-style-type: none"> <li>• General Criteria: The need to properly and thoroughly draft SC related clauses</li> </ul>



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	<p>that plaintiff had been awarded the project. That letter specified that the contract would require completion within five months, that is, by the middle of September of 1969, a requirement confirmed by telephone between Golden and Brooner before the contract was signed. Later, during construction, Brooner acknowledges that Golden told him "he needed the building in September", to which Brooner replied "(he) would do (his) best to complete the job in this time". The conclusion seems inescapable that, at least as between the two time references in the contract documents, the September 15, 1969 completion date was intended to control. Nor do we vary this conclusion because of the testimony of defendant Golden's architect that even when the contract was let completion by September 15, 1969 was not possible. "The plaintiff, when he undertook the work, had the power to measure the extent of his obligation, and he [*549] cannot excuse himself by saying now what he contracted to do (could not have been) performed."</p>	<p>(Several conflicting dates of substantial completion can be present in contract and one should be aware of them)</p>
18	<p>As a general principle, it is well settled law in Louisiana that even if the owner proves the existence of the defects or omissions and the cost of repairing them he is nevertheless barred from recovering the cost thereof if he accepted the work despite the patent defects or imperfections discoverable upon reasonable inspection. Acceptance, however, does not bar the owner from recovering for defects not readily discoverable by ordinary inspection, or for defects which manifest themselves subsequent to the acceptance, or for defects which are explicitly excluded from the terms of the acceptance. Nonetheless, it is also well established that acceptance with the understanding that certain defects will be remedied does not bar recovery for the cost of remedying such defects. Further, where a plaintiff is of necessity forced to accept the premises he cannot be said to have voluntarily waived his right to claim damages. In <i>Michel v. Efferson</i>, 233 (223) La. 136, 65 So. 2d 115 (1953), the Louisiana Supreme Court said: "The defense of waiver is a special one and the burden of proof is on the defendants to show that the plaintiff had knowledge of the defects and intentionally waived the same . . . Waiver can result only from the intentional relinquishment of a known right." While <i>Michel</i>, supra, involved the actual taking of possession and not a recorded acceptance, it would appear that the legal principles applicable to waiver are pertinent to the instant case. Under the circumstances present herein, it does not appear that plaintiff intended to waive any claims for defective construction. Rather, the evidence discloses that all parties were aware of plaintiff's dissatisfaction with various items enumerated on the punch list of April 1974, and also that if acceptance of the building was not made the loan commitment would expire causing an increase of one-half percent on the interest rate for the life of the loan. This increase would certainly have been quite substantial and in view of the contractor's delay might well have been assessed as damages due to delay. Consequently, this Court does not believe that the filing of the acceptance should bar Hemenway in view of the pressing need to accept the facility of which fact all parties were clearly cognizant. Further, the language of the acceptance indicates only that Hemenway has attested to Substantial, completion of the facility.</p>	<ul style="list-style-type: none"> <li>• General Criteria: An owner can accept a facility and still not recognize it as SC (did so that the percent on the interest of loan won't increase).</li> </ul>
19	<p>By August 24, 1975 the progress reports showed the electrical work was 100% complete in most categories and 98 or 99% in the remaining categories. The Director of the New Jersey Division of Buildings and Construction testified that there was substantial completion of all elements of construction, including the theater, "around June of 1975."</p>	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Uncompleted electrical works.</li> </ul>
20	<p>Based on Murphy's review of the plans and specifications of the job and based upon his review of the engineering data from the parties, he formed an opinion that the lagoon aeration system was 100% complete on October 10, 1983, and the entire</p>	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items:</li> </ul>

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	<p>plant was substantially completed in early December 1983. He explained that the entire lagoon aeration system was able to be used for the purpose for which it was intended on October 10, 1983. However, the outfall chlorine system was not totally operational at that point and the chlorine system and alum system were not operational, but became operational in early December. He further explained the diversion of the sewage from the old treatment plant to the lagoon system in October of 1983 benefited both plaintiff, who needed to protect the aeration pipes from freezing with a minimum of two feet of water over them during the winter, and defendant, since defendant obviously needed this plant and it was already much later than defendant expected to have the plant on line. The court also found that, even though defendant granted a 60-day extension, there was no indication the 60 days had any relationship to the weather conditions in the fall of 1981 and the spring of 1982. In addition, the court found the lagoon and aeration system was substantially complete on October 10, 1983, meaning it could be used for the purpose for which it was intended on that date. Only "the chlorine and alum aspects" were not complete, and they became operational shortly thereafter. According to the trial court's findings, a 14-to 15-month excusable delay was caused due to unforeseeable and abnormal weather. The trial court found substantial completion on October 10, 1983. Since the project was sufficiently complete at that time to be used for the purpose for which it was intended, then it would seem appropriate to construe the liquidated damages provision to close at the time of substantial compliance, even though there may be minor repairs, adjustments, or finishing work remaining. After all, if the contractor can get paid at substantial compliance that is the logical time to discontinue the applicability of the liquidated damages clause. If the contractor fails to complete the additional work, the owner's remedy is to have someone else complete it and sue the contractor to recover the expense.</p>	<p>Non-operational systems.</p>
21	<p>Like the trial court, the Court of Appeals rejected defendants' argument that the notice of completion posted by VIP's pursuant to ORS 87.035 satisfied the requirements for written acceptance in ORS 12.135(3). However, unlike the trial court, the Court of Appeals also rejected defendants' argument that "substantial completion" occurred when VIP's opened for business. The court reasoned that, in the absence of written acceptance, ORS 12.135(3) requires evidence that the owner accepted the construction as fully completed. Because the evidence adduced on summary judgment indicated that construction was not fully complete on February 13, 1997, but continued thereafter, the Court of Appeals held that the trial court had erred in granting summary judgment. The first question presented focuses on the first clause of ORS 12.135(3), which defines "substantial completion" to include "the date when the contractee accepts in writing the construction * * * as having reached that state of completion when it may be used or occupied for its intended purpose." Defendants contend that when VIP's posted a completion notice pursuant to ORS 87.045, that notice, combined with the fact that VIP's was open for business on that date, constituted acceptance of the construction sufficient to satisfy the requirements of ORS 12.135. To analyze that argument, we must consider the text of both statutes. ORS 87.045(1) provides that "completion of construction" occurs when any one of three events occurs: (1) the construction is "substantially complete," (2) "a completion notice is posted and recorded," or (3) the construction is "abandoned." Thus, an owner's posting of a completion notice pursuant to ORS 87.045 demonstrates that the owner has concluded that all original contractors have substantially performed their contracts and has stated, in writing, that "the building, structure, or other improvement" located at the described property "has</p>	<ul style="list-style-type: none"> <li>• General Criteria: Occupation of facility does not always assert SC achievement. Certificates of occupancy do not always ascertain SC achievement. Notice of completion does not have the same effect as SC certification.</li> </ul>

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	<p>been completed." The question remains, however, whether an owner's posting of such notice demonstrates that the owner has "accepted" the construction as "having reached that state of completion when it may be used or occupied for its intended purpose." ORS 12.135(3). We are not persuaded that the owner's notice of completion under ORS 7 87.045 fulfills that same purpose or, more importantly, meets the terms of the statute. By issuing a completion notice under ORS 87.045, an owner indicates that construction is sufficiently complete that liens may be filed. However, the owner does not necessarily "accept" anything, much less take control of and responsibility for the construction. Furthermore, although an owner's issuance of a completion notice indicates that the owner believes, at least for purposes of issuing the notice, that all of the original contractors have "substantially performed their contracts," that is not necessarily an acceptance of the construction as sufficiently complete for its intended use or occupancy. Additional work by the original or subsequent contractors may be necessary for the construction to reach that state. One additional clue that notice of completion pursuant to ORS 87.045 does not necessarily constitute written acceptance for purposes of ORS 12.135(3) is that subsection (4) of ORS 12.135 defines "abandonment" by reference to ORS 87.045, but does not define "substantial completion" by reference to that statute.</p>	
22	<p>Paragraph 9.8.1 defines "Substantial Completion" as a "stage" in the progress of the work, and Paragraph 8.1.3 defines the "date" of Substantial Completion. The contract does not further define the words "stage" or "date," but the difference in the terms is obvious from their dictionary definitions. The dictionary defines "stage" as "a period or step in a process, activity, or development." Webster's Third New Int'l Dictionary 2219 (unabridged ed 2002). The dictionary defines "date" as "the point of time at which a transaction or event takes place or is appointed to take place: a given point of time." Id. at 576. Thus, a stage may extend over a period of time, while a date is a specific point in time. Accordingly, under the terms of the parties' contract, if a contractor were to consider construction fit for occupancy or use on, for example, March 1, any date after March 1 would be a date within the "stage" of Substantial Completion. By the terms of the parties' contract, however, claims do not accrue during the "stage" of Substantial Completion but only on a specific "date of Substantial Completion." Paragraph 13.7.1.1 (emphasis added). Paragraph 8.1.3 defines the "date of Substantial Completion" as one date -- the "date certified by the Architect in accordance with Paragraph 9.8." Therefore, in our example, the "date of Substantial Completion" could only be the specific date after March 1 designated by the architect in the Certificate of Substantial Completion. We therefore agree with plaintiff that evidence that plaintiff occupied and used the property for its intended purpose beginning sometime in February 1999, and at the latest by March 14, 1999, does not establish the date on which plaintiff's claims accrued under Paragraph 13.7.1.1. Under that provision, plaintiff's claims accrued only on the date that the architect issued a Certificate of Substantial Completion. Our decision does not mean, of course, that the construction in this case was never substantially complete -- indeed, defendant's work may well have been fully complete at some point in 1999, when final payment was authorized. But without evidence that an architect issued a Certificate of Substantial Completion, defendant cannot rely on Paragraph 13.7.1.1 as establishing the date that plaintiff's claims accrued. In this case, defendant subcontractor contends that the 10-year limitations period of ORS 12.135 began to run on or before March 14, 1999, when the church held its dedication service. The date of that service is relevant evidence that defendant accepted the construction as fully complete on that date, but that is not the only evidence in the record. Plaintiff offered evidence that construction continued after March 14, that</p>	<ul style="list-style-type: none"> <li>• General Criteria: The occupation of the facility does not always assert SC achievement.</li> </ul>

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	neither the architect nor the owner considered the construction to be complete on that date, and that the county did not issue a certificate of final occupancy until May 28, 1999. Because evidence of the date on which construction was fully complete is contested, the trial court erred in granting summary judgment to defendant subcontractor.	
23	<p>For reasons which can be stated very briefly, I am of the view that practical completion of the Hotel by 30.June 1998 is a condition precedent to completion of the purchase. The language of the Sale Agreement is clearly to that effect. And there is nothing in the context calling for some other construction. This is plainly and simply not a Hong Kong Fir Shipping Co Ltd v Kawasaki Kisen Kaisha Ltd sort of situation. Freedom from non-trifling patent defects is practical completion .As to what cl.2.01(b) means by "practical completion", I have already outlined the rival submissions made by Mr.Sumption and Mr.Thomas. Each has put forward his submissions most attractively. Ultimately, I find myself persuaded by the submissions put forward by Mr.Sumption rather than those put forward by Mr.Thomas. In my view, what cl.2.01(b) means by "practical completion" is a state of affairs in which the Hotel has been completed free from any patent defects other than ones to be ignored as trifling. I should of course indicate that I recognize the force in Mr. Thomas's point as to what he called the "cataclysmic consequences" of not performing to that exacting standard. But Mr.Sumption's riposte is, I think, a sufficient one. As defined by Mr.Thomas's argument, the standard of readiness to be opened for business as a hotel means - as it had to for the Vendor's purposes given the facts of the present case - such readiness even though works are still being continued. That is, to put it mildly, difficult to reconcile with the delivery of a hotel on a turnkey basis which is, as a matter of commercial reality, what was obviously contemplated by the parties. In saying that, I have not forgotten Mr.Thomas's description of CY.Leung &amp; Co Ltd.'s reference to "sale on a turnkey basis" as an estate agent's blurb. But I think that it was more than that, and forms an important component of the factual matrix. The position reached is therefore as follows. Practical completion of the Hotel by 30.June 1998 to the standard of freedom from non-trifling patent defects was a condition precedent to completion of the purchase. The Vendor accepts that the Hotel was not free from such defects as at that date. Therefore, contrary to the judgments of the courts below holding that the Purchaser had repudiated the Sale Agreement, it was the Vendor who had done so. This was repudiation in the sense which Mr.Sumption described as "repudiation in the Chitty sense". That description was a reference to the passage in Chitty on Contracts (29th.ed. 2004) Vol.1 at p.1243 para.21-015 which speaks of failure to perform by a stipulated time which is of the essence entitling the innocent party to terminate the contract and claim relief. For the foregoing reasons, I am of the view that the Purchaser's appeal must succeed. There is one aspect of the issue of readiness to be opened for business which I propose to deal with even though I would allow the appeal no matter how that issue is to be resolved. It is the aspect of fire protection. Under the Building Department's Code of Practice for Fire Resisting Construction (the Code) every building must be divided into fire compartments to inhibit the spread of fire. And the Code lays down the minimum fire resistance period (FRP) for the vertical and horizontal partitions of each type of compartment, depending on its location and purpose. The compartments concerned in the aspect of fire protection with which I am now dealing are the riser shafts running through the full height of the Hotel.</p>	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Unachieved minimum fire resistance period.</li> <li>• General Criteria: The generation of any punch list does not assert that SC is achieved. The occupation of the facility does not always assert that SC is achieved.</li> </ul>
24	The learned trial judge found that some of the work which Abigroup was obliged to perform by the terms of the subcontract was not completed until after 14 August 2003, and the value of that work was \$327,095.53. Further, some defects in works	<ul style="list-style-type: none"> <li>• General Criteria:</li> </ul>

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	<p>done by Abigroup had been discovered prior to 29 May 2003 but were not remedied before that day. The joint ventures argued before the learned judge that the evidence established convincingly that all work had been performed under the subcontract by either 29 or 30 May 2003, and pointed to statements by Abigroup to that effect in a number of letters written on its behalf. The learned judge took into account, however, other evidence showing that work under the subcontract continued after 14 August and up to 14 November 2003, and the judge remarked that the admissions or assertions made by Abigroup, that work had finished earlier, was only some of the relevant evidence on the question of when work under the subcontract had been completed. The joint ventures challenged those findings on the appeal, while conceding, as the learned judge had held, there was other evidence contradicting Abigroup’s statements on which the joint ventures relied, namely that all works on the site were complete by 4 August 2003 and that there were only minor outstanding works to be completed after 29 May 2003. I respectfully consider it was correctly put by the learned judge, and that that is a further reason for rejecting the joint ventures’ challenge to the learned judge proceeding on the footing that work Abigroup was obliged to perform had not been completed until after 14 August 2003. The learned trial judge, in rejecting that submission, observed that by definition the state of affairs described as practical or substantial completion in a building contract was not completion of the whole of the contract works. The judge noted that since most, if not all, building contracts for substantial sums contain a definition of either or both “practical” or “substantial” completion, it would have been easy enough for the legislature to declare in s 3B that a building subcontract was completed when, by its terms, the subcontractor had achieved practical or substantial completion, had that been the purpose of s 3B. The subcontract under consideration relevantly described “substantial completion” as meaning “completion of the subcontractor’s work”, and the latter phrase as being that stage in the execution of the work under the subcontract when those works were complete except for a limited number of minor omissions and minor defects which the managing contractor’s representative, in its absolute discretion, determined did not prevent the work from being reasonably capable of being used for their intended purpose, and which that representative determined the subcontractor had reasonable grounds for not promptly rectifying, and rectification of which would not prejudice the convenient use of the works. That definition, describing substantial completion as occurring when there were only those limited minor omissions and defects, envisaged their rectification, which was specifically provided for in the contractual terms providing for defects liability and a defects liability period. As I understand the matter, there remained after 29 May 2003 minor omissions and minor defects which Abigroup was still required by its contract to rectify, and it was that work which had a value of \$327,095.53. Mr. Bond informed the court that according to Abigroup’s evidence that work was done after 14 August 2003. On those facts, irrespective of whether the managing contractor’s representative had certified that there had been substantial or practical completion of the subcontract work by 29 May 2003, as at 14 August 2003 Abigroup had not yet performed the work specified in the subcontract in accordance with it. That is, irrespective of whether it satisfied the contractual definition of completion of the subcontract works, it did not satisfy the statutory one. It achieved that status, it would appear, on or about 14 November 2003. I agree with the learned trial judge that it was when the statutory definition in s 3B was satisfied that the time bar provided in s 10(2) started to run. I observe that contracting parties would usually find it</p>	<p>The generation of punch list does not always assert SC is achieved. A notice of completion does not have the same effect of a certificate of SC.</p>

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	relatively easy to identify when in fact the s 3B definition of deemed completion applied. Accordingly I would dismiss the joint ventures' cross-appeal against that part of the judgment.	
25	<p>The other important feature of SC2 is that by defining “practical completion” as being “the issuance of The Occupation Certificate” [sic], the parties have effectively overridden [sic] and conceptually changed the “standard” definition of practical completion, which is reflected in the wording of clause M1. This conceptual change renders some other provisions in Section M of the Contract somewhat uncertain. In particular, clause M10.1 deals with the situation where an owner takes possession before the work required to be performed under the Contract is completed. The clause provides that: “If the owner takes possession of the whole of the works or a separable part of the works before the architect issues the notice of practical completion, the whole of the works or that separable part, as the case may be, are to be treated as having reached practical completion”. This deeming provision, together with a particular interpretation of the word “possession”, is the key part of CorCourt’s argument in its claim for liquidated damages, yet as discussed in the following paragraphs, clause M10.1 has been rendered ambiguous and probably irrelevant when construed in the light of SC2. Having considered the competing contentions of CorCourt and Quasar as set out above, I have concluded that Quasar’s construction of SC2 should be preferred. Although the wording of SC2 does not specifically refer to an “interim” certificate, it appears to contemplate only one occupation certificate being issued and it does not, by its terms, exclude an interim occupation certificate. Further, as a Special Condition, SC2 takes precedence over clause M10 and it must be construed and applied so as to provide a workable contractual regime for “Practical Completion”. Accordingly, whatever the actual state of completeness of the internal and external tenancies might have been on 16 July 2004, the issue of the Interim Occupation Certificate at that time was, in my view, the step envisaged by SC2 as being the defining marker of “Practical Completion” for contractual purposes. I also note that from that time, the evidence of the progressive occupation of the tenancies and the overall completion of the work by Quasar was consistent with “Practical Completion” (as defined by SC2) having already been achieved. I have therefore determined, pursuant to the terms of the Contract, that the Date of Practical Completion for each of the separable parts and the whole of the Works was 16 July 2004.” One (but not the only) difficulty for the plaintiff in the context of the referee’s finding is that the construction which it put to the referee was equally unsustainable. Possession in the sense in which it is used in the Contract is physical control coupled with an intention of holding that control. Clause M10 operates where the owner “takes possession”. Possession (or handover) might be available, but if the owner does not take it, cl M10 does not apply. Undoubtedly by the time the external and internal tenancies commenced trading the plaintiff had taken possession of them, but also undoubtedly it must have taken possession before then. The proposition put by the plaintiff that the meaning of possession in cl M10 is to be construed as possession for the purposes of trading was correctly rejected by the referee. When a written contract is construed the whole of the instrument has to be considered. Preference must be given to a construction which supplies a congruent operation to the various components of the whole of an instrument: In my view cl M10 is easily and sensibly reconciled with SC2 so as to result in their congruent operation. SC2 envisages practical completion being marked by a certificate sometime after what is referred to as the “Handover Date”. Clause M10.1 concerns the owner actively taking possession. I consider that there is no good reason why the referee’s finding of practical completion should not be</p>	<ul style="list-style-type: none"> <li>• General Criteria: A certificate of occupancy indicates that SC is achieved (The contractual definition in this case of SC was changed to the issuance of certificate of occupancy).</li> </ul>

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	accepted and every good reason why it should. The report is to be adopted with respect to its finding that practical completion of the whole of the works occurred on 17 July 2004.	
26	<p>There was also evidence that, quite apart from either the non-existence or, alternatively, the wrong placement of the piers so as to render any subsequent construction structurally unsound, there was also evidence that there were other problems with the construction of the piers and slabs, particularly in relation to the south-east and north-east corners. He advised in his report that the purpose of his inspection was to examine the rectification of the footing at the south elevation and at the south-west corner, as well as the front porch footing and the retaining wall. In relation to the footing rectification and front porch footings, he concluded that the rectification for the brickwork was considered structurally inadequate, and an examination of photographs taken during the pouring of the footings suggested that the porch footings were poured in two stages, which was structurally unacceptable. In addition to the certificates and notations issued by Mr Larner, there was photographic evidence of the frames and trusses being stored on the wet ground. Further, on 15 October 2001, the Blue Mountains City Council requested the respondent to submit: "... a report from a structural engineer or other suitably qualified person certifying that all split and moisture and fungal damaged timbers identified in the State Forest Timber Inspection Reports dated 18 January 1999 and 19 August 1999 have been rectified." There was no evidence that such certification had ever been provided. Mr Andrew Phillips, Building Consultant and Inspector, inspected the property on 19 May 2000, and provided an extensive report of the defects in the property. Some of these defects were clearly of a minor nature, or were irrelevant – for example, the existence of animal droppings in many rooms of the property, and some scratching of glass. Others could not be so considered. So far as is relevant to the present topic and to mention only a few matters, Mr Phillips observed that in bedroom one, the joinery timbers had been damaged and had not been adequately sanded and stopped. It is to be inferred from his report that this was not a "minor" defect, as his report elsewhere made specific reference to "minor" discrepancies. For example, in relation to his observation that the joints to the joinery timbers had opened up, he ascribed the word "minor". In relation to the walls in each of the rooms, he reported that timber frame walls had not been adequately plumbed and squared prior to the fixing of the gypsum plaster board wall linings and the joints to the joinery timbers (skirting and architraves) had not been carried out in a good and tradesman-like manner. It follows from what I have said that the evidence was that practical completion had not been achieved as at the date of the giving of the certificate of practical completion. Indeed, it still has not been reached. In those circumstances, the appeal must be allowed and judgment should be entered for the appellant on the respondent's Statement of Claim. His Honour recorded the appellant's claim that the concrete slab was not passed by Council and was structurally defective and inadequate for the task. His Honour found that there was no evidence provided by the appellant to support this latter allegation. Practical Completion was not achieved for reasons which include that the respondent had not satisfactorily completed stages two and three relating to the slab and the timber frame. When such basic parts of the work are not satisfactory the whole structure may well require demolition. In his own interests, if the structure ought to have been demolished, the appellant should have presented evidence of the damages on the basis that that was to happen. He did not do so. The Court of Appeal should not attempt to conduct his litigation for him, and should not confer on him a second procedural opportunity when, or because he did not use the first opportunity properly.</p>	<ul style="list-style-type: none"> <li>• Acceptable Punch List Items: Scratched Glass.</li> <li>• Non-acceptable Punch List Items: Not installed water system. Not installed appliances. Structural inadequacy of frames and trusses. Problems in construction of piers and slabs. Structurally defective and inadequate slab.</li> </ul>

Case Number	Judgment Extracted From Case Law	Extracted Criteria
27	<p>The contract does not provide a specific form for a certificate of practical completion, but in the absence of any evidence to the contrary the clear statement in the letters of 19 and 20 May 1999 establishes that practical completion was reached on 22 March 1999. In a letter dated 8 September 1999 the solicitor for the appellant wrote to the respondent (in reply to a letter invoking certain contractual provisions applicable where the appellant was in default of making a payment due pursuant to the contract) stating that "our client is firmly of the belief that practical completion has not yet occurred and accordingly we have advised our client that the liquidated damages clause therefore applies". But significantly neither the appellant, nor its solicitor then raised with the superintendent any issue as to the statements made by the superintendent in the letters of 19 and 20 May 1999. On the day of the hearing another affidavit was filed on the appellant's behalf exhibiting a letter from the superintendent bearing the date 8 August 2000 in the following terms: "We confirm that a Certificate of Practical Completion has not yet been issued for Contract No 21199-0. This is because 'As Constructed' documentation required under Clause 1.12 of the specification has not been received". Significantly, the superintendent did not address in that letter the statements made in his letters of 19 and 20 May 1999. It is a matter of some significance that the only document from the superintendent relied on by the appellant comes some 17 months after the critical letters and on the eve of the hearing of the summary judgment application. Practical Completion" is defined in the contract as the stage when "the Works are complete except for minor omissions and minor defects" and when "documents and other information required under the Contract which, in the opinion of the Superintendent are essential for the use, operation and maintenance of the Works have been supplied". Essentially "Practical Completion" is a question of fact and it is for that reason that the statements in the letters of 19 and 20 May 1999 are significant. The appellant primarily concentrates on the absence of a certificate, but a certificate is not essential; it is no more than evidence. No particulars have ever been supplied identifying work yet to be done by the respondent. Further, insofar as the supply of documents is relevant (given the terms of the definition) the superintendent has not stated his opinion that documents "essential for the use, operation and maintenance of the Works" have not been supplied. For those reasons the letter of 8 August 2000 is not determinative of the position. There was an onus on the appellant to demonstrate that there was some issue to be tried or some other good reason for the matter to go to trial. In all the circumstances it cannot be said that the learned District Court judge was wrong in concluding that on the evidence practical completion had been reached in March 1999 and there was no triable issue with respect thereto.</p>	<ul style="list-style-type: none"> <li>• General Criteria: SC can be proved by something other than a certificate of SC (Here for example progress payment and delay claim was used to prove where in both instances it was said that SC was achieved).</li> </ul>
28	<p>In the present case cl 15 of the Agreement obliged Cordon to have the Strata Plan (a defined term) approved by Council and registered following completion of the Building Works, that is, having regard to the definition of Building Works, after completion of the "construction work comprised in the Plans and Specifications". Nor do I think the word completion can be read as meaning practical completion of the Building Works or completion to a stage necessary to enable approval of the Strata Plan to be obtained from Council. The word completion seems to me to be unambiguous and there is no justification for reading it down to require something less than what was in fact agreed to. Further, I do not believe that the construction leads to a result which is arbitrary or capricious. Cordon was advanced the cost of carrying out the work through the NAB facility, which was secured over Lesdor's property. It was entitled to the benefit of the Residual Lots in the Strata Plan on completion of the work it contracted to do. There seems to me nothing uncommercial in such a result. It provides a form of</p>	<ul style="list-style-type: none"> <li>• General Criteria: An owner can demand for a complete construction without even any minor defects to accept the work as complete.</li> </ul>



Case Number	Judgment Extracted From Case Law	Extracted Criteria
	<p>protection for Lesdor against non-completion in circumstances where Lesdor would otherwise be left to sue Cordon or the guarantors for damages. Such protection would not be provided by the defects liability provision in cl 21 of the Agreement as, in my opinion, it only related to defects which may appear in the period set out in cl 21(a) and (b) and not uncompleted or defective work which appeared prior to that time. It should be added that the respondent correctly conceded that de minimis departures from the Plans and Specifications would not provide a basis for refusing to deliver the Strata Plan to Cordon. This is because such departures would not mean the work had not been completed. However, in the present case the appellant accepted that the defects, whilst said to be minor, were not de minimis. It follows, in my opinion, that the primary judge was correct in concluding that Lesdor was not required to hand over the Strata Plan until the works had been completed as required by the contract, namely in accordance with the plans and specifications (cl 5.1(a)) and in a proper and workmanlike manner (cl 11). In these circumstances grounds 1-4 of the grounds of appeal are not made out.</p> <p>In the case of contracts which at least on their face appear to be entire contracts, particularly lump sum building contracts, courts have been reluctant to construe complete performance of the works as an essential pre-condition for payment. Rather, in circumstances where there has been substantial performance, they have treated a failure to complete as a breach of a non-essential term of the contract not disentitling the builder to contractual payment for the work done but, rather, giving the proprietor a right of setoff or claim for damages for the cost of completing the work or rectifying any defects. The position was summarized by Denning LJ in <i>Hoenig v Isaacs</i> supra at 180-181: “the first question is whether, on the true construction of the contract, entire performance was a condition precedent to payment. It was a lump sum contract, but that does not mean that entire performance was a condition precedent to payment. When a contract provides for a specific sum to be paid on completion of specified work, the courts lean against a construction of the contract which would deprive the contractor of any payment at all simply because there are some defects or omissions. The promise to complete the work is, therefore, construed as a term of the contract, but not as a condition. It is not every breach of that term which absolves the employer from his promise to pay the price, but only a breach which goes to the root of the contract, such as an abandonment of the work when it is only half done. Unless the breach does go to the root of the matter, the employer cannot resist payment of the price. He must pay it and bring a cross-claim for the defects and omissions, or, alternatively, set them up in diminution of the price. The measure is the amount which the work is worth less by reason of the defects and omissions, and is usually calculated by the cost of making them good. [Citation of authorities omitted.] It is, of course, always open to the parties by express words to make entire performance a condition precedent.” It follows that it is strictly unnecessary to deal with the findings of the primary judge that Cordon did not substantially perform its obligations (at [169]). The primary judge reached that conclusion based on pars [421] and [424] of the referee’s report, which he adopted, noting those paragraphs were not disputed by Cordon and based on his conclusion in relation to the five substantial defects. In my opinion, for the reasons set out hereunder, his Honour was correct in this approach. In pars [421] and [424] of the referee’s report, the referee concluded that the defects ultimately notified (that is notified post termination) were not minor and would have prevented the premises being reasonably fit for occupation both on 23 February 2006 and 31 July 2006.</p>	

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29	<p>In summary therefore, my answer to the 2 preliminary issues is as follows: (i) The expression 'Main Contract Works' in clause 15 of the sub-contract means work under any project performed by the claimant under a contract order issued under the main contract in respect of that project (and including for the avoidance of doubt work performed under a contract order issued under the main contract after the original main contract completion date whilst the main contract was still being operated, whether pursuant to a formal extension or an informal continuation) in respect of which work was also ordered by the claimant from the defendant under the terms of the sub-contract.(ii) The certificate of substantial or practical completion of the Main Contract Works in clause 15 of the sub-contract means a project completion certificate (as defined in clause 1.3.33 of the Main Contract) under the Main Contract.</p>	<ul style="list-style-type: none"> <li>• General Criteria: Subcontractor does not have to wait for entire work to be certified as substantially complete but only his work.</li> </ul>
30	<p>The jury, on September 22, 1978, gave a verdict that was basically favorable to Ramada. The jury found that Ramada had substantially performed its construction obligations and should receive \$79,902.10 as the final payment for construction. Although the jury found that Rauch was damaged by a failure of Ramada to completely finish the construction work, the jury believed that Rauch should receive no money because he had prevented Ramada from completing the work. The jury further found that Ramada had substantially furnished the motel and delivered the inn supplies as required under the contract. Rauch, according to the jury, owed Ramada \$373,933.38 and \$73,018.68 respectively as the unpaid balance for those two items. Following this verdict, on November 6, 1978, the district court found that plaintiff had a valid mechanic's lien under Florida law for \$288,042.88, plus prejudgment interest of \$145,587.21 and attorney's fees of \$175,000 also secured by the lien. In addition, the district court ordered the property sold at public auction if Rauch did not pay \$470,042.88 to Ramada.</p>	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Furnishing of the motel. Delivering Inn supplies.</li> <li>• General Criteria SC does not require the contractor to remove from the premises all materials non-conforming with contract if they are accepted by owner.</li> </ul>
31	<p>Notwithstanding this requirement, clause 4 of the September agreement provided a list of works, including the snagging of the entire development, the commissioning of the air conditioning system, and the completion of both the gymnasium and the subbasement which were not yet complete. These works, particularly the air conditioning, were located throughout the hotel. They "would be likely to remain outstanding" by 12 September 1999" but, by clause 6, Impresa was to use its best endeavors to complete the development as soon as reasonably possible. It follows that the relevant access referred to in the September agreement was a grant by Impresa to Cola of the use or occupation of parts of the hotel of the use and occupation of the hotel as provided for in clause 23.3.2 of the conditions and was not the granting of partial possession of any part of the hotel. Until the incomplete works referred to in clause 4 of the September agreement had been completed, Impresa remained at risk of having to pay liquidated damages at the full rate even though access to the hotel was being provided to Cola pursuant to the September agreement. In other words, Impresa's obligation to complete the entirety of the works by 20 May 1999, or by any other extended Date for Completion, remained in full as did its obligation to pay £10,000 per day for any period of non-completion. This led to the adjudicator deciding, in a decision dated 22 December 2000, that enough of the defects discussed by the three experts were patent as at November 1999 to prevent Practical Completion from having occurred. In consequence, the Defects Liability Period had not started. The adjudicator then decided that he would not make any specific determination as to the nature or existence of specific defects but would issue directions as to how to resolve that issue.</p>	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Pending commissioning of the air conditioning system. Pending completion of gymnasium and subbasement.</li> </ul>

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32	<p>The primary judge noted, seemingly as an aside rather than as a ground for his decision, that there was evidence before him that the defects described in the respondent’s Notice “posed substantial risks, are costly to repair and do require prompt rectification”. Whilst the evidence to this effect that the respondent called is of course relevant to the question of whether there has been material non-compliance by the applicant with its obligations under the Contract, it does not foreclose the possibility that, as contended by the applicant, there is a serious question to be tried as to whether there has been such material non-compliance. In favor of the applicant’s contention that there is such a serious question to be tried is the fact that Certificates of Practical Completion for each of the three stages of the Project have been issued by the Project Director. The Certificate certifying Practical Completion of Part 2 of the Project on 30 June 2009 was dated 8 July 2010. As the respondent points out, the Certificate concluded with the following statement: “Although [the respondent] has been trading prior to Occupation Certificate and Practical Completion, we cannot recommend the release of the QBE Performance Undertakings because of the amount owing to the [respondent] by the [applicant] due to the liquidated damages, major defects and outstanding Practical Completion deliverables”. The Certificate in respect of Part 3 of the Project certified that Practical Completion had been achieved on 30 June 2010. It contained the same final statement although the word “major” did not appear before the word “defects”. The Certificate stated that it attached the Schedule of Defects to which I have referred earlier. The Schedule was enclosed with the letter of 16 July 2010 by which the Certificate was sent to the applicant. As the Certificates of Practical Completion for Parts 2 and 3 were issued by the Project Director as agent for the respondent and so close in time to the date of the respondent’s Notice of 19 July 2010 they should in my view be regarded as establishing that there is a serious question to be tried as to whether the condition precedent stated in Clause 16.2 has been satisfied and therefore as to the validity of the respondent’s Notice. To my mind the fact that the respondent, through its agent, the Project Director, certified that the works were practically complete raises a real issue as to whether the defects identified in the respondent’s Notice (and indeed all those identified in the Project Director’s Schedule) are of sufficient seriousness to require a conclusion that the applicant has “materially” failed to comply with its obligations under the Contract. Whilst different views may be taken about how complete works have to be to be “practically complete”, it is arguable that, notwithstanding the statements that appear at that end of the Certificates, the respondent, by its agent, certified that the works were “nearly” or “almost” complete. It is arguable also that this certification is inconsistent with the assertion in the respondent’s Notice of 19 July 2010 that the applicant was in material non-compliance with its obligations under the Contract by reason of the existence of defects in the works. I add that whilst the concluding statements in the two Certificates (referring in the one to the subsistence of “major defects” and in the other to the subsistence of “defects”) raise a doubt as to the degree of significance that can be attached to the certifications of Practical Completion, they do no more than that. In particular they do not unarguably deprive the Certificates of the significance that the applicant seeks to attach to them.</p>	<ul style="list-style-type: none"> <li>• General Criteria: The issuance of SC certificate denies the owner from calling on performance bonds for presence of patent defects.</li> </ul>
33	<p>The relevant contracts, which were also incorporated by reference in the subcontracts, contained clauses providing that the statute of limitations for any cause of action arising under the contracts would run from the date of "Substantial Completion." The architect's contract provided: Causes of action between the parties to this Agreement pertaining to acts or failures to act shall be deemed to have accrued and the applicable statutes of limitations shall commence to run not later than either the date</p>	<ul style="list-style-type: none"> <li>• General Criteria: Certificates of occupancy can indicate that SC is achieved.</li> </ul>

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	<p>of Substantial Completion for acts or failures to act occurring prior to Substantial Completion, or the date of issuance of the final Certificate for Payment for acts or failures to act occurring after Substantial Completion. The general contractor's contract similarly provided: As to acts or failures to act occurring prior to the relevant date of Substantial Completion, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than such date of Substantial Completion[.] By their terms, the contracts pertaining to the architect and its subcontractors are governed by Pennsylvania law, which provides a four-year statute of limitations for construction contract lawsuits, 42 Pa. Cons. Stat. § 5525(a)(8) (2006), while those of the general contractor and its subcontractors are governed by New Jersey law, which has a six-year limitation period. We first address plaintiff's predicate argument that the event defined by the clause as commencing the running of the statute, i.e., the issuance of the certificate of "substantial completion," is equivalent to a certificate that the construction is in substantial compliance with the contract or that there are no major construction defects. Based on that argument, plaintiff contends that the architect fraudulently certified the project as being substantially complete. Plaintiff's argument is based on an incorrect interpretation of "substantial completion" as that term is understood in the construction industry. Contrary to plaintiff's contention, the term "substantial completion" does not mean "substantial compliance" with the contract or an absence of defects. As our Supreme Court has recognized, substantial completion is a term of art in the construction industry and it has a well-recognized meaning. Accordingly, the Court agreed with decisions from other states which "have interpreted their statutes to begin running at substantial completion, when the property is fit for occupancy by the public." Id. at 118, 675 A.2d 1077. The point of so defining substantial completion is to set a "bright line" date on which the limitations period begins to run. To that end, the issue is not whether the construction has defects but whether a certificate of occupancy has been issued such that the property can be used for its intended purpose. There is no dispute in this case that not only did Trinity obtain a temporary certificate of occupancy for the addition, but its parishioners used the addition for many years before the lawsuit was filed.</p>	
34	<p>As quoted above, this contract expressly states: "A new computer based control system for the improvements is included in the Work." To accept Carrothers' interpretation would require us to overlook the undisputed fact that the computerized control system was not operational until January 12, 2004. This asks too much, given the agreement between the parties and its clear expression of the parties' intent as to what performance was required to substantially complete the work. In addition, Carrothers would have us give no meaning to the specific provision adopted by both parties that delegated to their project engineer the task of determining when the work would be deemed "sufficiently complete in accordance with the Contract Documents" that it could be "utilized for the purposes for which it is intended." When the contracting parties clearly intended to make such a delegation, this court should respect those wishes absent a showing the engineer acted in bad faith when making this determination. No evidence exists in this record that the project engineer was acting in bad faith. MKEC determined Carrothers did not substantially complete the project until January 12, 2004, because that was the date when Carrothers finished its work on the control system and other safety features. MKEC's determination is consistent with the plain language contained within the contract documents and the undisputed facts set out in the parties' cross-motions for summary judgment.</p>	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Non-operational side or sides of a process basin. Missing computerized control system. Missing handrails and walkways.</li> <li>• General Criteria: The interpretation of SC definition should not ignore the contractual definition of work.</li> </ul>

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35	<p>The certificate of substantial completion, dated March 27, 2013, contained a requirement for M&amp;M to complete or correct the items on the attached punch list within thirty days, one of which was to "[b]ring the DataMatic remote read water meter system up to full functional status." In his deposition, Tibbets testified that for the AMR to be fully functional under the Contract, it would have to provide consistent and accurate data from each of the meters that migrates to the City's computers and populates the cells of the water billing software. He testified that he did not know that the system was ever fully functional. He also testified that as of June 19, 2013, the AMR system was not fully functional. Tibbets also discussed the problems that arose in the AMR system after he had issued the certificate of substantial completion, as previously noted, and testified that he would not have issued the certificate of substantial completion had these problems been known at the time. Under the Contract, M&amp;M was required to provide and install, either itself or through its subcontractor or supplier, all the necessary equipment, software, and training to furnish a complete and operational, fully functional AMR system that met the requirements set forth in the technical specifications. In addition, to the extent that its supplier, Datamatic, installed the MIUs, M&amp;M had the duty under the Contract to supervise, direct, and inspect Datamatic's installation of the MIUs to ensure that Datamatic's installation, and the products it installed, were adequate to meet the requirements of the technical specifications. Further, under the Contract, M&amp;M was obligated to repair or replace any defects in the work discovered within one year after substantial completion of the project. Viewed in the light most favorable to the City, as non-movant, the summary judgment evidence produced by the City is more than a scintilla of probative evidence that M&amp;M breached the Contract by failing to properly supervise, direct, and inspect the installation of the MIUs, failing to provide and install a fully functioning AMR system, and by failing to repair or replace the defects discovered in its work. The summary judgment evidence showed that Datamatic was M&amp;M's supplier and that it installed all of the MIU's, approximately twenty percent of which were not functioning. Whether the twenty percent failure rate was caused by Datamatic's installation of faulty MIU's or by Datamatic's faulty installation, M&amp;M remained liable under the Contract for Datamatic's acts or omissions. For the reasons stated, we find that the trial court erred in granting American Safety's no-evidence motion for summary judgment, and we sustain the City's first issue. As noted above, the Contract required M&amp;M to provide and install a fully functioning AMR system, and a certificate of substantial completion did not release M&amp;M from that duty. Further, the Contract obligated M&amp;M to correct or replace any work found to be defective within one year after the date of substantial completion.<sup>7</sup> In addition, the Contract required that the performance bond guarantee, without limitation, that the work would be completed and performed according to approved plans specifications and to extend for one year after approval of the work by the engineer. Construing the Contract as a whole, it is clear that M&amp;M's obligations under the Contract extended beyond substantial completion and that American Safety would be liable under its performance bond, which incorporated all of these provisions, for M&amp;M's default. See Bayshore Constructors, Inc., 543 S.W.2d at 902; TransAmerica Ins. Co., 669 S.W.2d at 822. For these reasons, we find that the trial court erred in granting American Safety's traditional motion for summary judgment, and we sustain the City's second issue.</p>	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Not fully functional water meter system.</li> </ul>
36	<p>The contract also obligated Hensel Phelps achieve "Substantial Completion" of the entire Work under the contract within a time certain. Substantial Completion was defined by the contract as "that stage in the progress of the Work" when (1) "such</p>	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items:</li> </ul>

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	<p>Work or component is sufficiently complete in accordance with the Contract Documents to permit lawful occupancy and use thereof for its intended purpose”; (2) “a temporary certificate of occupancy has been issued with no material conditions (i.e., conditions that would impair the issuance of a permanent certificate of occupancy) that in Owner’s reasonable judgment are not susceptible of being completed in a timely manner”; (3) “all Project utilities have been properly installed and approved by the applicable utility companies”; (4) “[t]he Architect has issued its Certificate of Substantial Completion”; and (5) “Contractor has certified that all remaining Work (as such remaining work is mutually determined by Contractor, Architect, and Owner in their final review of the Project) will not interfere with Owner’s use or enjoyment of the Project and is capable of being completed and will be completed within sixty (60) consecutive calendar days following the date on which the Architect shall have issued a certificate of Substantial Completion.” The contract provided, “Minor corrective or deficient Work (such as touch-up painting or replacement of minor broken or defective materials), or minor incomplete Work, shall not be deemed a cause for asserting that the Work has not achieved Substantial Completion, provided, however, that the conditions requiring such corrective, deficient or incomplete Work are not such as would render any portion of the Work unsuitable for occupancy or use by Owner or any prospective purchaser of a condominium unit, or would result in the inclusion in any temporary certificate of occupancy of any condition not acceptable to Owner in its reasonable discretion. . . . However, the Work will not be considered sufficiently complete in accordance with the Contract Documents or suitable for Substantial Completion review until all Project systems included in the Work are operational as designed and scheduled, all designated or required governmental inspections and certifications have been made and posted. In general, the only remaining Work shall be minor in nature, so that the Owner could occupy the building on that date and the completion of the Work by the Contractor would not materially interfere or hamper the Owner’s (or those claiming by, through or under Owner) normal business operations.” In accordance with the contract, a list of items to be completed or corrected (“punch list” items) was attached to the Certificate. It included the entry canopy glass, the rooftop handicap lift, the security system, four streetlights, mailbox lock, spa-elevator lift, and “[l]ighting at BBQ.” The City continued to perform required inspections of the project. The project only partially passed its final fire inspection in early June 2007. The project fully passed in late June, with final alarm, sprinkler, and underground approvals. The project passed several structural inspections, but in early July it failed a rough framing inspection. Similarly, the project failed its final structural inspection twice in July. It did not pass the final structural inspection until July 17, 2007. The project also failed its final electrical inspections in early July.</p>	<p>Missing structural city inspection.  Missing fire city inspection.  Missing electrical city inspection.  Missing residential unit appliances and flooring.</p> <ul style="list-style-type: none"> <li>• General Criteria:  Certificate of occupancy does not always assert that SC is achieved.</li> </ul>
37	<p>Construing this provision, the courts have held that it establishes two discrete dates from which the time for filing the statement of claim begins to run; to wit: (1) on the date the last work is performed or the last materials are delivered to the site or (2) on such earlier date when the owner accepts the improvement, possesses or occupies the property if only minor or inconsequential matters remain to be finished or minor defects or errors in the work are to be remedied. "Where the owner occupies the premises, but significant items of work remain to be done, substantial completion does not occur until the unfinished work is completed, that is, the date the last work is performed or materials delivered as described in Subsection (1) of Section 4822(H)." South mark, 535 So. 2d at 510. "Occupancy of the property does not trigger the beginning of the</p>	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items:  Lack of state fire marshal’s approval of fire system.</li> <li>• General Criteria:  The occupation of the facility does not always asserts SC is achieved.</li> </ul>

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	<p>period for filing liens if major or consequential construction items are unfinished or major remedial work remains to be done." Conversely, if the only work remaining on the date the owner occupies the premises is minor "punch list" items, substantial completion occurs on that date. As a commentator points out, the reference to "minor or inconsequential matters" in Section 4822(H) (2) is equivalent to "punch list" items; a "punch list" is simply "a euphemism for minor and inconsequential matters that need to be completed." Applying those principles here, we find that the lack of the state fire marshal's approval of the FM-200 system was simply another fact to be considered in determining whether the Build-Out of the Suite was substantially complete as of July 8, 1999. ) Establishing the date on which substantial completion of the project occurred is an essential element of a subcontractor's claim under the Private Works Act because by statute that date marks the commencement of the lien period. La. R.S. 9:4822(C). C &amp; S's failure to establish that date results in an inability to establish the timeliness of its claim. For that reason, the trial court erred in granting summary judgment in C &amp; S's favor. 5 For that same reason, we further find that the trial court erred in failing to grant Delta's cross-motion for summary judgment.</p>	
38	<p>The CC&amp;Rs do not define "substantially complete." The trial court relied on the dictionary definitions of "completion" and "complete." "'Completion' is defined as the 'act or action of completing, becoming complete, or making complete.'" 'Complete' is, in turn, defined as 'possessing all necessary parts, items, components, or elements'; 'brought to an end or to a final or intended condition'; and 'fully realized' or 'carried to the ultimate.'"<sup>18</sup> Because the trial court found that "substantial completion" was a term commonly used in the construction industry, it also relied on the definition from RCW 4.16.310, a statute about claims arising from construction. RCW 4.16.310 defines "substantial completion" as "the state of completion reached when an improvement upon real property may be used or occupied for its intended use." Applying these definitions to section 9.1 of the CC&amp;Rs, the trial court found that a "Lot," as defined in the CC&amp;Rs, is "substantially complete when the improvements have been completed sufficient to allow the property to be occupied for its intended use." In addition, a number of other governing documents show that Kilo Six intended lot 13 to have a hangar: 1. The original lease between Kilo Six and the County shows a hangar on what is now lot 13. 2. The purchase and sale agreement between Weidner and Kilo 6 for Weidner's purchase of the lot 12 hangar states, "[Kilo 6] intends to improve the leased property so that there will be three separate hangars on the leased property." 3. The CC&amp;Rs state, "Because of the nature of the anticipated use of the Property as an aircraft hangar facility for working aircraft, safety and security are of particular concern." 4. Kilo Six's amended operating agreement states, "[Kilo Six] shall continue to pursue efforts to construct an aircraft hangar on Lot 13, and thereafter shall operate or lease Lot 13 and the hangar constructed thereon, or shall sell and transfer such Lot 13 Lease and hangar."</p>	<ul style="list-style-type: none"> <li>• General Criteria: Courts can rely on the standard definition of SC to make their determination if SC is not defined in the contract.</li> </ul>
39	<p>The contract states: Substantial Completion of the Work will be deemed to have been achieved when Substantial Completion has been certified in writing by the Architect, and approved by Owner, such approval by Owner shall not be unreasonably withheld. As a condition to obtaining the Architect's certification of Substantial Completion, the Contractor must submit to the Owner and Architect a request for Substantial Completion inspection, a list of items to be completed as of such date (i.e., list of punch list items) and an estimated time to final completion of all punch list items. Thus, to achieve substantial completion three things had to occur:(1) the issuance of the certificate of shell building; (2) the work was complete, "except</p>	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Cracked flooring. Problems with HVAC system. Leaking gutters near electrical panels.</li> </ul>

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	<p>for minor corrective items commonly referred to in the construction industry as 'punch list' items[;]" and (3) Forum Portales could use the building for its intended use. Both parties cite cases discussing the meaning of substantial completion. However, the contract definition is controlling. The underlying assumption of Beck's argument is that any item contained on the punch list was a minor corrective item. However, the record does not support Beck's assumption because many of the items contained on the punch list were major corrective items. For example, the punch list included items such as the cracked flooring on the first floor; problems with a part of the HVAC system; and the leaking gutters in the parking garage which had still not been repaired as of April 2007. Thus, whether the items were listed on the punch list is not the definitive question; the true question is whether they were major or minor corrective items. However, the record shows that major corrective work did occur on some of the punch list items between February 2007 and May 1, 2007. Forum Portales presented evidence that the defective HVAC and the safety hazards created by the leaking garage gutters prevented the architect from issuing the certificate of substantial completion prior to May 1. Beck's operations manager conceded that an inoperative HVAC system was a significant item that could prevent substantial completion. The HVAC continued to malfunction between January 31 and May 1, 2007, but most of the major HVAC issues were resolved by May 1. Because the HVAC problem that remained as of May 1 was close to resolution, it did not hold up the certificate of substantial completion. The architect testified that the gutter in the parking garage leaked near an electrical panel, creating a serious safety issue due to the potential for electrocution or an electrical short. Beck again conceded this type of problem could preclude substantial completion. The leaking gutter issue was ultimately resolved by relocating the electrical panel, which occurred sometime in the spring of 2007, e.g., before the certificate of substantial completion was issued on May 1.</p>	<ul style="list-style-type: none"> <li>• General Criteria: The occupation of the facility does not always assert SC is achieved.</li> </ul>
40	<p>Todd and Smalley aver that Meritage continued to participate in meetings with SP Terrace representatives and work with SP Terrace on further changes to the development even after the December 31 deadline, indicating that it continued to insist on performance after breach of the agreement. In his affidavit, Tyler Todd states that SP Terrace "continued to work with [Meritage] under the Contract and to accommodate changes requested by [Meritage] throughout December 2005, January 2006, and into February 2006." Kelly Smalley states that a Meritage representative participated in a meeting to discuss the proposed subdivision changes on January 10, 2006, after the deadline. We hold that SP Terrace raises a fact issue as to whether Meritage waived the December 31 substantial completion deadline and its right to terminate the contract on this basis, particularly in light of the contract provision that the substantial completion deadline "would be extended" to the extent of any delay caused by Meritage. According to Todd and Smalley, SP Terrace prepared to file the subdivision plat in November 2005, but at Meritage's request, it delayed filing it. Smalley also stated the following: The development was often delayed by lack of information, delays in approvals and changes in plans and designs from [Meritage]. For example, I could not obtain timely approval from [Meritage] for finalizing the design of the fences, the location of the electrical service, Steve Harding's failure to attend a meeting on November 16, 2005 with CenterPoint Energy and failure to respond to CenterPoint Energy on various issues. These failures and delays caused a delay in the substantial completion of the subdivision.</p>	<ul style="list-style-type: none"> <li>• General Criteria: Owner can waive its right for substantial completion deadline and its right to terminate the contract on this basis, particularly in light of the contract provision that the substantial completion deadline "would be extended" to the extent of any delay caused by owner.</li> </ul>
41	<p>We believe that a substantially completed building is sufficient to cause the six-year period to begin to run. Thus, neither Stubenrauch's nor Holy Family's interpretation fits the statute's language. Instead, we turn to legislative intent to construe the</p>	<ul style="list-style-type: none"> <li>• Acceptable Punch List Items: Leaky roof.</li> </ul>



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	<p>statute. In 1976, the legislature published findings and a statement of intent with an amendment to sec. [*523] 893.155, Stats. (Later renumbered sec. 893.89). Section 1, ch. 335, Laws of 1975. The legislature found that: (a) Subsequent to the completion of construction, persons involved in the planning, design and construction of improvements to real estate lack control over the determination of the need for, the undertaking of and the responsibility for maintenance, and lack control over other forces, uses and intervening causes which causes [sic] stress, strain, wear and tear to the improvements and in most cases have no right or opportunity to be made aware of or to evaluate the effect of these forces on a particular improvement or to take action to overcome the effect of these forces. Although the legislature's findings studiously avoid defining substantial completion, its statement of intent suggests that the six-year period should begin to run when planners, designers, and contractors lose a significant amount of control over the improvement. We are persuaded that the date of occupation and use for its intended purpose is a significant factor in signaling a building's substantial completion. In addition, occupancy as a factor triggering the six-year period acknowledges the legislature's concerns about control. It recognizes that the builders' control over the improvement declines when the owner takes possession. Finally, a factor that considers the date the owner can occupy a building prevents the owner from affecting the six-year period's commencement by arbitrarily delaying occupancy. We note that this definition closely resembles that on Stubenrauch's certificate of substantial completion. While we implicitly adopt the architect's definition of substantial completion, we reject the notion that the architect may unilaterally determine the six-year period's commencement. For purposes of the statutory limit, it is the court, not the architect, who determines the date of substantial completion. Thus, while the date of an architect's certificate of substantial completion may be persuasive in determining the statutory date of substantial completion, we conclude that the dispositive event in this case was Holy Family's occupation of the building for its intended purpose. For the purposes of sec. 893.89, we conclude as a matter of law that the church building was substantially completed on March 28, 1978, when the congregation first occupied the building for its intended purpose. Holy Family's premise that substantial completion is equivalent to substantial performance is in error. We have recognized the distinction between a measure of time and one of degree of performance. The test for substantial completion does not rely directly on the doctrine of substantial performance. The two concepts may overlap in situations where failure to substantially perform a contract causes a building to be unusable. This, however, is not the case here.</p>	<ul style="list-style-type: none"> <li>• General Criteria: Occupation of facility can assert that SC is achieved (Commencement of activities in church).</li> </ul>
42	<p>This matter simply requires the Court to decide which definition of "substantial completion" applies to the issue of incentive fees. Clearly, Article 2D denotes a meaning of "substantial completion." Furthermore, Article 1A of the construction contract expressly states, inter alia, that "[t]he provisions of this instrument and the said FHA Supplementary Conditions take precedence over all inconsistent provisions in the said AIA General Conditions." (Emphasis added.) Article 8.1.3 of the AIA General Conditions and Article 2D of the construction 983*983 contract are inconsistent. The inconsistency arises over the person designated to determine "substantial completion." Article 8.1.3 requires the administering architect to make the determination while Article 2D delegates that responsibility to HUD. In Missouri and generally, it appears to be well-established that parties to a building contract may agree that a designate person, such as a named architect or engineer, shall determine questions relating to the performance of the contract and the amount due, and that such determination shall be final</p>	<ul style="list-style-type: none"> <li>• General Criteria: Conflicting articles can be present in contract that require different entities to certify SC.</li> </ul>

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	and conclusive, absent fraud or gross mistake.[3] This agreement between the plaintiff and National Church, embodied in the construction contract, calls for HUD's Chief Architect to determine the date of substantial completion. Plaintiff has not produced any facts showing fraud or gross mistake by HUD. On the contrary, HUD has shown good cause for its issuance of the Final Inspection Report eleven days after the contract's completion date.	
43	<p>As is usually the case, the concept of practical completion was not defined in the agreement for lease. This case is therefore interesting for Coulson LJ's comments on the meaning of practical completion. In particular:</p> <ul style="list-style-type: none"> <li>• practical completion is a state of affairs in which works have been completed, free from patent defects, other than trifling ones that can be ignored;</li> <li>• it is easier to recognize than define;</li> <li>• there is no difference with patent defects between an item of work which is outstanding and an item of defective work which requires to be remedied (snagging lists can cover both);</li> <li>• whether or not a defect is trifling is a matter of fact and degree and just because students could live in the property did not necessarily mean that the property was practically complete; and</li> <li>• The fact that a defect is irremediable (as in this case) does not of itself prevent practical completion.</li> </ul>	<ul style="list-style-type: none"> <li>• General Criteria: Occupation of facility does not assert SC is achieved.</li> </ul>
44	<p>The Smiths have misinterpreted the importance of this issue with respect to the Court's holding. In pertinent part, the Order states, "Here the Court finds that because, at the very least, the construction of the addition (the garage) contemplated in the original Contract had not even begun at the time of the initiation of the current litigation, the Smith's performance of the contract was not substantially complete." See Order at p. 5 (emphasis added). The above language demonstrates that the construction of the garage was but one of many factors considered by the Court in holding that the contract was not substantially complete. Indeed, the supporting analysis within the Order relies primarily on a litany of other factors, such as the results of a home inspection, whereas the issue concerning the garage was discussed very briefly. See Order at p. 3, 4. Thus, assuming arguendo that the garage was not a component of the parties' agreement, the outcome of the case would be the same. Simply put, the Court has found that a residential home is not substantially complete where, among other issues, the dishwasher, hot water heater, air conditioning unit, and basement electrical system are in such a state as to be rendered unfit for inspection. The original opinion on pages three and four focused on the Arnetts' arguments addressing whether the house renovations were substantially complete and included their arguments about the expired permits and the seriousness of the items left in an incomplete or defective status. The inspection report indicated the house lacked cooking appliances, microwave, ventilator, and air conditioner system and electrical disconnect for that system; the dishwasher and hot water heater were present but could not be inspected because their installation was not complete; there was no power to the basement electrical circuits, sump pump, attic electrical or lights, so these items could not be inspected; the bathroom fan venting was not installed; joist hangers were needed; there was no handrail going to the basement; and the driveway was incomplete. Mr. Smith's action of installing kitchen appliances before he moved in is evidence that a reasonable person would not move in without them. The lack of electrical power to certain systems suggests these electrical systems may not have been safe. Because of the lack of inspection to the building, electrical system and HVAC, the Arnetts could not know if</p>	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Not all required inspections are performed. Lack of cooking appliances, microwave, ventilator, and air conditioning system in houses. Non inspection of appliances. Non installation of bathroom fan venting. Missing joist hangers. Missing handrails that lead to the basement. Incomplete driveway.</li> </ul>

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	their house was fit for occupation and use. Furthermore, these deficiencies could not be legally remedied without appropriate, valid permits.	
45	<p>Deferring to the construction industry standard practice of deeming a project complete, the Court held that substantial completion had occurred for statute of repose purposes when the certificate of occupancy was issued and the architect certified to the owner that building was substantially completed. Id. at 117. The Court accepted the certificate of occupancy as an appropriate benchmark for substantial completion because [a]t that point, the building is inhabitable, and only touch-up items and disputed items, the punch list, remain. Ibid. This standard set[s] a bright line date on which the [ten-year statute of repose period] begins to run. While this Court in Russo Farms acknowledged the importance of the date of substantial completion as certified by a project s lead architect, see Russo Farms, supra, 144 N.J. at 92-93, 117, a stipulated date of substantial completion may also be relevant to a court’s analysis of the statute of repose, see Trinity Church, supra, 394 N.J. Super. at 170 (concluding parties can stipulate via contract to substantial completion date). Here, however, we have no such benchmark. The critical term - the date of substantial completion -- is missing from the Certificate of Substantial Completion signed on November 15 and 24, 1995, and the document bears no official date of execution. Moreover, as the trial court found, in November 1995, substantial work remained to be completed before the building could be used. Accordingly, the incomplete Certificate signed in November 1995 is irrelevant to the statute of repose in this case. We also affirm the trial court’s finding with respect to the significance of the Stipulation and the Town of Kearny Resolution 1999 (R)-338 arising from the Town s settlement with Belcor. These documents, which identify the date of substantial completion as February 1, 1996, represent neither a contemporaneous agreement between the Town and the Brandt-Kuybida defendants with respect to the operative date, nor the architect s determination that the facility was substantially complete. The trial court’s rejection of February 1, 1996, as the date of substantial completion, for purposes of the dispute between the Town and the Brandt-Kuybida defendants, was amply supported by the evidence.</p>	<ul style="list-style-type: none"> <li>• Non-acceptable Punch List Items: Missing approval of facility plumbing.</li> <li>• General Criteria Certificate of occupancy can indicate that SC is achieved.</li> </ul>
46	<p>Thus, the owner was capable of having tenants occupy the spaces and collecting rents thereon, and he was already collecting substantial rents on many of the tenant spaces prior to that date. Despite the appellee's ability to rent out the shopping center spaces, the trial court found that appellant had not substantially completed the work by relying on an architect who testified that there still may not be substantial performance even though tenants were capable of occupying the premises, if the certificate of substantial completion called for in the contract had not been issued by the supervising architect. But this witness also testified that where there is no architect to give the certification, as there was none in this case, he would rely on the licensing authority and its certificate of occupancy to tell him that all work had been substantially completed under the contract. In this case, that occurred in March, 1984. While this architect 1 also testified that if a portion of the amenities such as landscaping are not fully complete, then there would be no substantial completion according to the contract, such a definition of substantial completion is contrary to both the contract and the case law, and the court erred in placing reliance on it. As even the architect noted, when the owner can put tenants in possession for fixturing and can begin to collect rents, the owner begins to utilize the work for its intended purpose. When the owner was able to occupy and fixture the constructed space, the construction was substantially completed. At that point, the appellant was entitled to his full contract price, less</p>	<ul style="list-style-type: none"> <li>• Acceptable Punch List Items: Missing portion of amenities such as landscaping.</li> <li>• General Criteria: Certificate of occupancy does not always assert SC achievement. If no architect was present to certify SC as stated in the contract, the facility can still be substantially complete. The monetary value of work remaining is not a criteria to assert SC achievement.</li> </ul>

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	<p>the cost to complete and the damages due to delay from the contract completion date through the date of substantial completion, and the trial court erred in determining that appellant had not substantially completed the contract. The architect witness also attempted to define substantial completion in terms of the dollar amount left to be done on the project (1/4 of 1% of the contract-price), but that too is contrary to the definition of substantial completion or performance which focuses on the owner's ability to utilize the construction.</p>	

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