“Analysis of Construction Dispute Cases in Canadian Courts and Lessons Learned for Modular and Off-site Construction Contracts”

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Abstract

Analysis of Construction Dispute Cases in Canadian Courts and Lessons Learned for Modular and Off-site Construction Contracts

Ei Ei Chan

Construction projects involve several professionals from various disciplines over the contract duration; contract claims and disputes among various stakeholders are hence inevitable. Construction contracts become more complicated along with the increasing complexity in design, construction process, and construction technology. Recently, Modular and Off-site Construction (MOC) has gained popularity and expanded its global market shares. However, there are yet no standard contracts for MOC to this date. Stakeholders usually adopt pre-drafted standard contracts, originally structured for conventional construction, and modify them based on project requirements. In this respect, there is an urgent need to evaluate such contracts' suitability for MOC projects. This can be done by analyzing the contractual disputes and their root causes through the literature, litigation, and their correlation based on the features of the MOC. This thesis develops a comprehensive framework which consists of (i) developing a model composed of a comprehensive list of contractual dispute causes, as documented in the literature and classifying them; (ii) examining the critical factors by classifying the Canadian court cases to identify the major root causes of litigation disputes based on the proposed model; and (iii) identifying lessons to prevent the dispute causes in the MOC by evaluating the interrelations between the result of case analysis and Canadian standard construction contract documents. The Canadian court system at two levels (of Supreme and Superior Courts) has been scoped, and 191 cases have been selected and analyzed for this study. As a result, the finding of this thesis can help contract drafters/administrators and general contractors recognize common causes of disputes to enhance the contract administration and management in MOC when drafting and administering the contracts in the new projects.

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Table of Contents

Lists of Figures

List of Tables

List of Abbreviations

Gross Domestic Product	GDP
Conventional and On-site Construction	COC
Modular and Off-site Construction	MOC
Supreme Court of Canada	SCC
Quebec	QC
Ontario	ON
Alberta	AB
British Colombia	BC
Industrialized Building System	IBS
Design-Build	DB
Construction Management	CM
Bid-Design-Build	BDB
American Institute of Architects	AIA
Canadian Construction Documents Committee	CCDC
Engineering and Construction Contract	ECC
Fédération Internationale des Ingénieurs-Conseils	FIDIC
New Engineering Contract	NEC
New Engineering Contract (Engineering and Construction Contract)	NEC ECC

Chapter 1 – Introduction

1.1) Motivation and background

Construction sector is the backbone of the nation's economy and contributes 13% of the global economy [1]. Accordingly, the construction industry represents the fourth-largest contributor of the nation's Gross Domestic Product (GDP) in Canada, with approximately 8% according to the 2020 Statista [2] report. Although the construction industry has a high portion of GDP, it has continuously developed innovative, efficient, and productive construction methods in order to address productivity reduction, safety issues (e.g., a number of injured workers and equipment accidents), and shortage of skilled labor over the past four decades. In this respect, as a representative example of these construction methods, modular and off-site construction (MOC) has recently been attention since it provides to not only reduce project schedule, cost, and material waste but also improve superior quality, safety, and sustainability with better control and less disruption to communities than conventional construction [3]. Fortune Business Insights reported that MOC market value has been expanding globally recently. MOC's global market size in 2019 was 67.74 billion US dollars and is forecasted to reach 106.22 billion US dollars by 2027 [4]. As MOC is a relatively new and complex construction method, a wide range of studies needs to be conducted to facilitate the modularization process [5], particularly in contract management and formation.

Consider the growing adaptation of MOC and its rising contractual difficulties resulting from lack of a standard contract and insufficient documents such as specifications, guidelines for inspection, existing standards, and regulations for the MOC method. Thus, construction practitioners face challenges in contract management and administration. In this respect, construction disputes are a significant reason for deterring successful project completion [6-8]. Many researchers have focused on detecting the common causation factors of disputes in conventional and on-site construction (COC) projects from different perspectives by identifying the published articles for awareness. Despite these efforts, the current industry's contract system demands less contractual difficulties and the number of litigations in the construction industry. On the other hand, limited information is found in the current literature that emphasizes contractual dispute causation factors in the MOC projects.

Disputes can be occurred due to various uncertainties and risks. Whenever a dispute arises, regardless of whether they can resort or not, the cost incurred is spent on the resolution process, damages suffered by parties, and hostility between parties [9]. Therefore, dispute prevention is preferable to dispute resolution. In this respect, construction insiders need to understand the circumstances or sources that could cause disputes [9]. Early identification of the causes of the dispute is crucial to complete the project within the timeframe, budget, and required quality [6, 10].

1.2) Modular and Off-site Construction Vs. Conventional and On-site Construction

The MOC can be explained as the process of planning, designing, fabricating, transportation, and assembling the components [11]. The MOC method transfers the on-site construction process to the off-site production processes, which produce the building components (e.g., wall and floor panels) by construction activities in an enclosed environment [12]. Due to this production in a controlled environment in MOC, it can reduce a considerable number of on-site works and minimize the number of accidents at the site [13]. It is reported that the rate of accidents occurring in construction projects reduces by 80% when the MOC method is used [14]. The MOC project was reported to have better labor productivity, with an estimated 30% improving productivity than those of the COC project [11]. MOC reduces 30 to 50% of the construction schedule than the COC [15]. The construction schedule is shortened by simultaneously performing off-site production work such as modules and components production and on-site construction work such as site preparation and foundation works [15]. Less disruption from inclement weather also benefits in saving construction duration in MOC project [14].

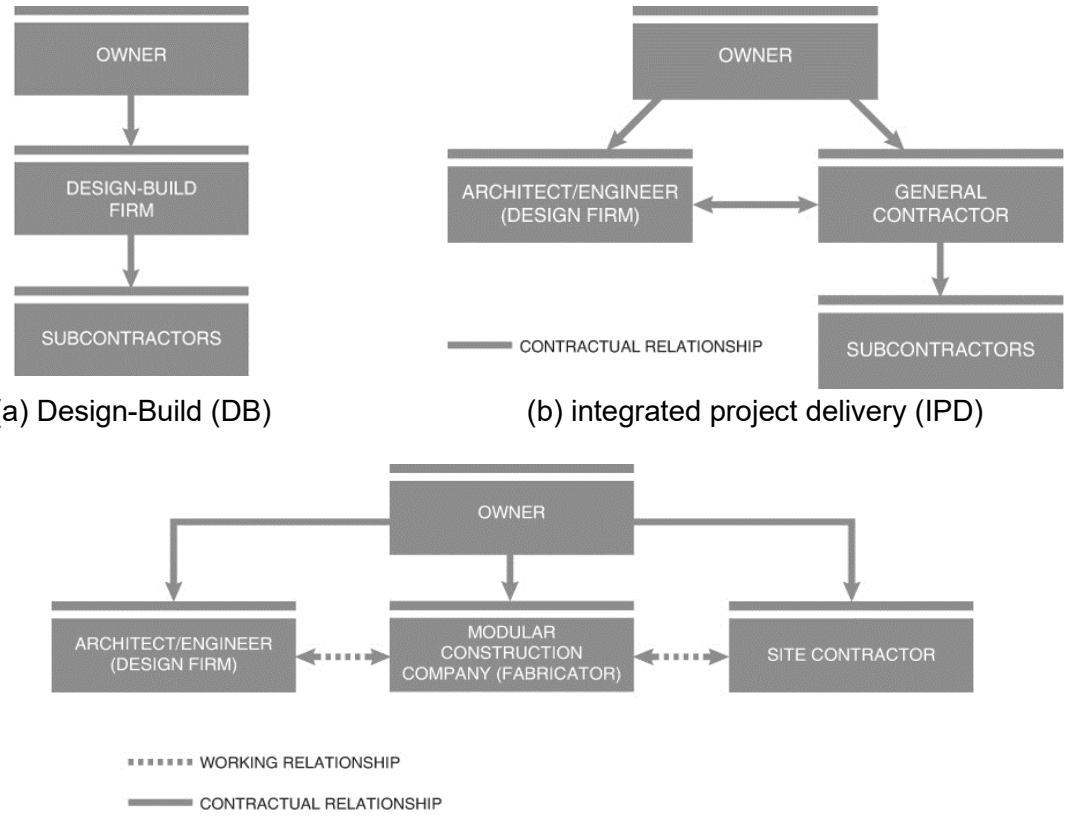
Other advantages of MOC are minimal waste, superior quality management, overall project cost saving, cost and schedule predictability, less disruption to communities, and improved sustainability [3]. The modules and components production works are performed under the tightly controlled, most automated, and the enclosed environment by the skilled laborers who repeatedly perform the same procedure, which in turn, superior quality products are produced within the shorter time period [14]. MOC is also an environmentally friendly method since it generates less waste, on-site dust, greenhouse gases, and noise than conventional constructions. In 2011, McGraw Hill surveyed cost reduction that benefited from modular construction, according to the industry insiders/ survey respondents, 6% or more budget-saving due to MOC [16]. Four factors that contribute to MOC's cost-effectiveness are 'reduced material transportation cycle for on-site labor', 'increase efficiency due to off-site components', 'lack of vulnerability to extreme weather interruption', and 'reduced time in engineering due to standardized design process' [14]. The adaptation of MOC in the construction industry is expected to rise in the future [16]. The usage of permanent modular construction (PMC) has grown continuously in Europe and the emerging market in North America [11].

Despite these advantages in MOC, the MOC insiders face some limitations and challenges since planning, cost estimation, scoping, and design in MOC method are different from those of the COC method. In this respect, Subramanya, et al. [14] described how planning and coordination in MOC are essential. MOC requires early confirmation of detailed scope and design before the actual construction starts, while in COC, owners can confirm during the construction stage. Therefore, excessive coordination and transition is a great challenge for construction practitioners to facilitate the MOC project [14]. Another contrary to COC is transportation management because MOC requires transporting the oversized components or enclosed modules to the site from the manufactured yard or factory. Special consideration and observation are needed in transportation arrangements because It can affect the project's timeliness completion and can be incurred extra cost [14]. In COC, materials are arranged to

transport to the project site and construction according to the design on the project site. Therefore, the COC method requires vast numbers of skilled laborers to perform on-site construction activities [17].

Since the COC method has long been dominant in the construction industry, pre-printed and readily available documents such as standard forms of contracts, specifications, and guidelines are structured for this method. Popular standard formats of construction contracts offered by different organizations, including the American Institute of Architects (e.g., AIA 2007), International Federation of Consulting Engineers (e.g., FIDIC 1999), UK Institute of Civil Engineering (e.g., New Engineering Contract – NEC3 2013) and Canadian Construction Documents Committee (e.g., CCDC-14). Since using the standard contract forms, helps minimize the misrepresentation and misunderstanding of the language and terms, they can reduce the risk of subsequent claims and disputes, which arise from the contractual performance [18]. During the process of contracting, the type of contract is decided based on two aspects: project delivery method (i.e., design-build, design-bid-build, construction management) and method of payment options (i.e., lump sum, unit price, cost plus fees) [19]. In practice, these selected standard contract forms are often modified to satisfy the owners' project requirements (and other parties involved) [20]. This standard contract modification process or tailored process creates contractual problems that promote conflict, claims, and disputes in construction projects [21].

The construction industry, in general, is a complex and competitive environment in which many professionals and different entities with different knowledge backgrounds are involved [22, 23]; therefore, it is inevitable to claims and disputes among various stakeholders. The various stakeholders involved in the COC contract are the client, architect/engineer (consultant), general contractor, and subcontractors. In the MOC contract, modular manufacturers engage as one of the major stakeholders in the contract relationships as an addition to the stakeholders of COC. This integration creates a relatively new territory for construction contract agreements regardless of the delivery method (i.e., design-bid-build, design-build, and CM) [11]. As MOC requires early integration of builders partnership with dealers and/or off-site product manufacturers during planning, designing, and schematic phases, design-build (DB) and integrated project delivery (IPD) methods are the suitable types for MOC [11]. In these methods, the modular contractor is integrated as one of the subcontractors in the contractual relationships [24]. Bid-Design-Build (BDB) is another primarily used method of delivery in the US for MOC, according to AIAS [24]. In this method, the client (owner) has three separate contracts with the modular contractor, architect/engineer (design firm), and general contractor (site contractor). In this method, a modular contractor assists in identifying the owner’s needs for proper design choices by reviewing the code compliance, budget, occupancy date, program requirements, and sustainability [24]. The contractual relationships of these commonly used project delivery methods for MOC are presented in Figure 1.



(a) Design-Build (DB)

(b) integrated project delivery (IPD)

(c) Bid-Design-Build (BDB)

Figure 1 Contractual Relationships with Project Delivery Method [24]

Although the MOC is a different construction method comparing to the conventional one (COC), it adopts and modifies pre-printed standard contracts used in conventional construction in accordance with the features of the MOC (i.e., indoor manufacturing production, transportation of modules, and lifting arrangements for on-site assembly) and project requirements since there is no standard contract for the MOC. International building code is used as the basis for modular construction as there is no 'modular construction building code'. In practice, a modular manufacturer has full responsibility to produce the modules or components that meet all applicable codes (i.e., local and international building codes). Since the MOC method is a process, it is not a product; therefore, it is recommended to treat the modular manufacturer as a subcontractor rather than a supplier [25]. Builder's risk insurance coverage is another concern for MOC delivery, which is different from the COC delivery method. In COC, the builder's risk insurance insures the property on-site and material stored on-site or in transit. For instance, the modules are delivered from the manufacturer factory and stored elsewhere off-site due to the project's off-schedule [25]. In this situation, additional coverage for potential loss needs to be arranged since no coverage is extended for modules stored off-site. In addition, MOC requires more complex coordination among planning, design, engineering, and procurement, contrary to COCs linear approach [17]. Fateh et al. [17] emphasized the need to formulate a standard contract tailored explicitly to the MOC delivery method.

1.3) Importance of Construction Contract

Contracts are an important part of the process of any construction project that protects the contracted entities and prevents disputes. A construction project entails segregated supply chains and collaboration among many parties/companies from various trades (e.g., architectural, civil, mechanical, and electrical engineering) during the construction life cycle. All these project participants are stipulated by a written contract to complete the scope of their works within the set time frame, budget, and expected quality [26]. Construction contracts are considered legally binding agreements to facilitate the legal dispute at the court and protect the contracted parties against the risks [10]. Therefore, a contract is expected to define the construction processes, the scope of work, roles and responsibilities, terms and conditions, risk management, and expected final results, minimize disputes among contracted entities, and provide precautions [27].

Suppose the contract addresses all of these required terms in unambiguous terms. Many disputes on a construction project can be avoided as the contract performs to settle the disputes [21, 28]. Cheng, et al. [7] suggested that the contract itself should have a clear contractual framework, legislative or administrative measures to secure payment. Addressing the disputes in the early stage is vital as it allows for fewer damages towards both parties involved in financial loss and business relationships [10, 29]. Therefore, addressing the core issues in contract management and dispute management is crucial to minimize disputes [10]. In the current contract management systems, contractual complexities, and the number of claims and dispute incidents have continuously increased due to several uncertainties and risks. Compressed schedules, shrinking profit margin, counterparties' opportunistic behavior, unpredictable market fluctuations, and environmental conditions are some of the encountered risks [9].

According to quantitative analyses by the Arcadis Global Construction Disputes Report (2019), the global average of dispute monetary value and dispute resolution duration in the construction industry in 2018 is 33 million USD and 17 months, respectively. Three top-most dispute reasons in the North American construction industry are 'fail to understand and comply with the contractual obligation by contractors and subcontractors', 'errors and omission in contract documents', and 'poorly drafted and unsubstantiated claims' [30-32] as per Arcadis reports. In addition, contract misinterpretation [33] and poor contract administrations [34] are the major causes of disputes leading to legal battles. These dispute causation factors such as missing information, unclarity of terms and obligations, excessive modification are mainly found in contract documents themselves [20]. Such issues are often a result of inappropriately drafted contract conditions [35]; hence improving the construction contracts’ clarity is a general need.

1.4) Disputes in Construction and Dispute Resolution Methods

The disputes can interrupt the project's timely delivery with the desired quality, and incurred cost increased or budget overrun [22, 36]. Construction disputes can be defined as an unsolved claim and improper management of conflicts when the project's risks are not assigned fairly [37]. A construction project can have contract disputes over these four major aspects: cost, quality, schedule, and safety [19]. Shin and Molenaar [38] classified the most common types of

disputes according to their characteristics: contractual disputes, organizational disputes, and technical disputes. When disputes arise, the project encounters delay in schedule, cost overruns, less profit, and fractures in the business relationship. In this respect, the efficient and effective management and control of construction disputes are essential for project success [10, 23]. In other words, dispute causation in construction projects should be identified as soon as possible to eliminate the potential litigations and reduce administration costs in a timely manner [10].

Different dispute resolution options are available and include in the standard construction contracts. These are Negotiation, Mediation, Arbitration, and Litigation to resolve disputes [39]. Negotiation is the least formal method and often conduct in an earlier stage in which disputed parties self-motivated to negotiate with a will to settle them on-site. If the parties resolve their issues at an earlier stage can save cost and time. Mediation is a more formal method than negotiation in which a neutral third party, the mediator, involves making mutual concessions between the parties. The construction parties often choose this method to avoid the legal cost, informal settlement, and maintain their business relationship. Arbitration method, a formal resolution method in which a third party, the arbitrator, involves reaching a settlement and that decisions made in the arbitrations are enforceable on the parties similar to the court decision. The most formal and traditional resolution method is litigation, in which involved parties have the least control over the decision. The Judge will make the final decision, and there are specified procedures to follow [39]. These processes of dispute resolutions have been outlined in the Canadian Construction Documents Committee (CCDC)'s provisions [21].

1.5) Canadian Judicial System

The traditional justice system trend in the construction industry has to change with the introduction of alternative dispute resolution methods such as mediation and arbitration to resort to the dispute timely and affordably [40]. However, the field of construction law is ever-changing with new laws, new techniques, new disputes, and occasionally new judicial decisions. The various legal issues such as tendering process, the context of labor and material bonds, unjust enrichment, trot and contract, interpretation of exclusion clauses in insurance contracts, and deficiencies in building inspections seek the court's judgment over the past two and a half decades [40]. The settled legal frameworks, derived from the previous court decisions over the years, contribute to settling the disputes by setting the standards and rules that can guide future negotiating the disputes outside the court [40]. Therefore, a construction court case study is worthwhile to perform and can contribute to the industry to stop the repetition of tedious disputes. It is worth noting the structure of the Canadian justice system.

The Canadian justice system is structured in a four-level hierarchy from the highest to lowest legal authority as the Supreme Court of Canada (SCC), Provincial/Federal Court of Appeal, Superior Courts, and Provincial/Territorial (lower) Courts [41].

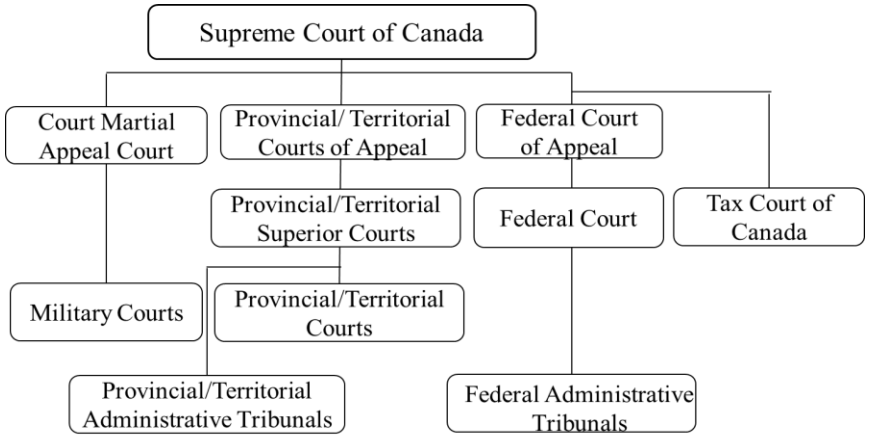


Figure 2 Overview of the Canadian Justice System [42]

Provincial and territorial (lower) courts are established by the regional government. They are the starting point for most cases that come into the system. Superior Courts handle more severe cases and hear the appeals from Provincial/territorial (lower) courts. Provincial/Federal Court of Appeal hears the appeals from Superior Courts. The SCC is the final court of appeal from all other Canadian courts and the Canadian justice system's highest level. SCC handles disputes in constitutional law, administrative law, criminal law, and civil law [41]. Supreme Court of Canada (SCC) present the appeal process diagram as below:

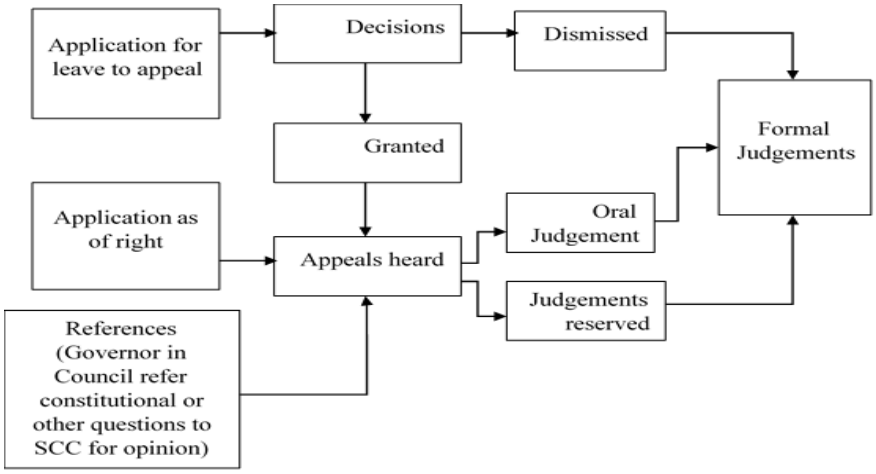
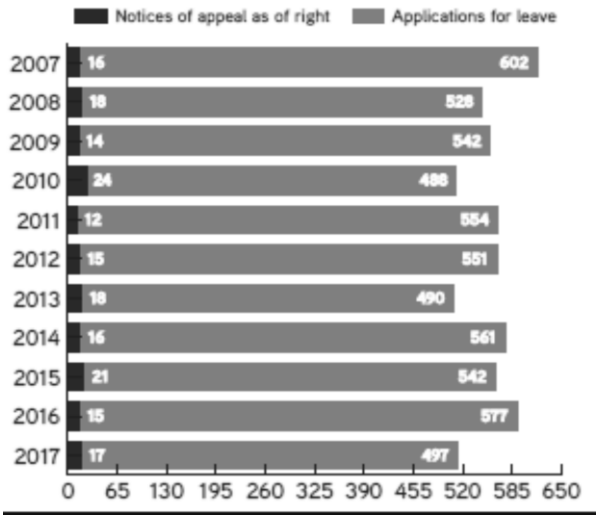
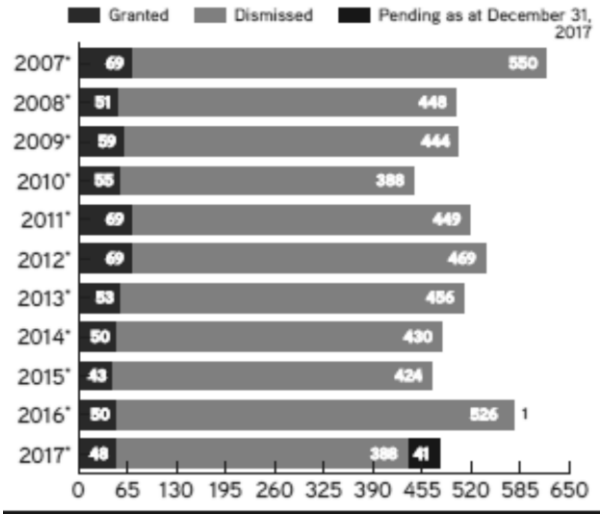


Figure 3 Appeal Process of the Supreme Court of Canada (SCC) [41]

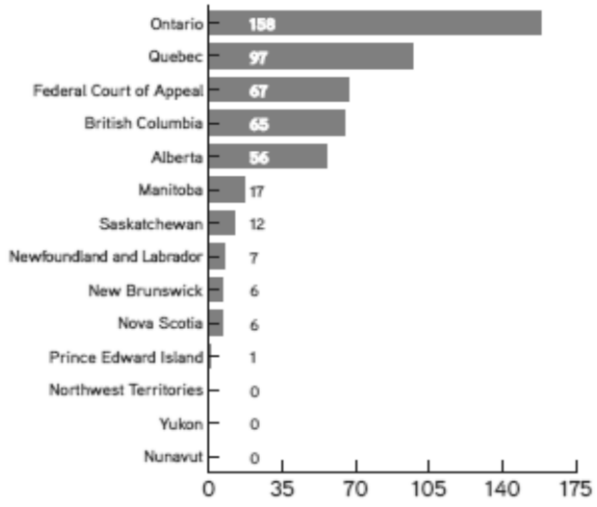
The SCC's appeal process comprises three groups: application for leave to appeal, application as of right, and references. A party must obtain permission from the court (SCC) to appeal to another court's decision (usually Court of Appeal). If an appeal is granted, appeals will be heard. However, certain serious criminal cases may not need permission, which can appeal 'application as of right'. Then, the federal government's references are also not required permission to appeal. That is counted as 'an appeal as of right' for the court to view the questions referred to by Governor in Council [41]. The Supreme Court of Canada's statistics report issued in 2017 reported the total workload at the SCC for the past twelve years Figure 3.



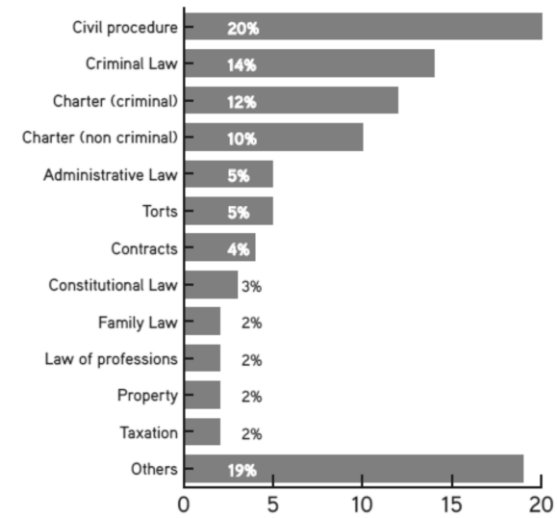
(a) Case Filed



(b) Applications for Leaves Submitted *(* does not include the cases that were submitted but an extension of time was dismissed)*



(c) Origin of Application for Leave in 2017



(d) Classified Cases by the Principal Area of Law in 2017

Figure 4 The Statistics (2007-2017) at the Supreme Court of Canada

Figure 4 (a) presents the number of complete applications for leave to appeal and notice appeals each year from 2007 to 2017. The SCC court received 514 new cases in which 497 cases are the application for leave, and 17 cases are the notice of appeal as of right. Figure 4(b) shows the number of leave applications submitted to the SCC for decision and granted number of cases. In 2017, 48 out of 477 cases are granted, while 388 cases are dismissed and 41 pending cases. Figure 4(c) presents the status of an application for leave case files from the origins (i.e., provinces) in the year 2017, and Figure 4(d) presents the classified application for leave case files according to the principal area of law in the same year. Ontario, Quebec, British Columbia, and Alberta are four provinces with the highest number of applications for leave in the hierarchy. These figures help to understand the overview and status of the workload of SCC over a decade.

1.6) Modular Construction in Canada

Construction industry is one of the largest industries in Canada. Approximately one million construction jobs have been created due to this industry over the past decade [43]. Today's construction industry has continuously improved and increasingly complex, and so the disputes it generates are also increased [40]. The three prevalent threats have braced Canadian construction: aging workforce and skilled labor shortage, abbreviated building schedule and tighter budgets, and intricate construction project [44]. Moreover, Canada is geographically large and diverse, also has extreme weather conditions. These create challenges and special requirements for buildings and infrastructure. For instance, harsh weather, especially in the winter months, disrupts the construction schedule and productivity [44]. Therefore, MOC has been identified as a promising construction innovation with the potential to address Canada's construction industry's challenges.

Nonetheless, the adaptation of MOC in Canada has fallen behind compared to the growth in the rest of the world. In this respect, Harvey [44] described the five potential barriers for broader adaptation of MOC in Canada: project stakeholders and culture, strategic context and business nature, technological characteristics, internal capabilities, and external environment. Unfamiliarity with modular methods by different professionals such as architects, engineers, general contractors, and transportation limitations is classified as an external environment that deters the MOC adaptation [44]. Therefore, stakeholders' roles and changing their conventional mindset are essential to accelerate MOC's adaptation in the construction industry [45].

1.7) Problem Statement

Previous efforts in the areas of disputes have mainly focused on the COC method, which has different features from the MOC method even though the construction activities are the same as the standard code and material. Previous studies can be used as a reference to prevent and/or mitigate the disputes in MOC projects since the contract format developed for the COC method is mainly adopted and modified in MOC. Nonetheless, *(1)* there is not enough information that identifies dispute causation for MOC methods, *(2)* no comprehensive framework that can be used to identify and quantify dispute causes for both COC and MOC. On the other hand, *(3)* the need to study the correlations between the literature and litigation cases based on the MOC features. Moreover, there is no standard contract document for MOC yet. MOC projects use non-standard contracts or modify the existing standard contracts developed for the COC method. Excessive modification of the contract leads to the unclarity of terms and obligations and missing information in contract condition, which generates contractual disputes.

1.8) Aim and Objectives

Providing effective prevention mechanisms for construction claims and disputes, first and foremost, requires a proper understanding of the underlying condition, risks, and causal factors in the contract documents. Corresponding to this demand, this study has set three main objectives:

(i) to develop the analysis framework, which comprises a comprehensive list of contractual dispute causes documented in the COC and MOC literature.

(ii) to examine Canadian contractual dispute court cases and identify the major root causes of litigation.

(iii) to extract the relevant terms from general conditions of Canadian standard contracts, which can help to prevent the court disputes in MOC.

Chapter 2 – Review of Related Literature

2.1) Common Causes of Disputes

Increased competitiveness in tendering, shortened bidding time frame, tight-budget, complicated design, and advanced technology integration make the construction industry more vulnerable to claims and disputes among contracting parties. In order to reduce the disputes in construction projects, understanding the core reasons or problematic areas in the mutually signed contract documents will be essential. Several researchers have attempted to identify the common root causes of claims and disputes in construction projects from different perspectives. These studies have detected common sources of confusion in construction projects and classified them from different contract entities' perspective.

Cakmak and Cakmak [22] aimed to define the factors which cause conflicts and disputes and cluster them by responsible parties such as owner, contractor, consultant, and human behavior. The 'unrealistic expectation', 'delay in payments from the owner side' are the listed factors related to the owner. The contractor related factors are 'wrong decision of contractors', 'underpricing the tender', 'without knowing full well design', 'not able to meet the standards. While 'design errors', 'lack of consultant knowledge' as the consultant related causes and lack of team spirit, lack of communication, and misunderstanding among participants as the human behavior related causes. Then, added design and contract related causes such as ambiguous terms in the contract document, contradict terms, bespoken terms, and lack of information are factors that need to be emphasized. Cakmak and Cakmak [22] performed the analysis of the causes of disputes using the analytical network process (ANP) to determine the relative importance among the literature gathered 28 common causes of disputes. According to the relative importance, *(i)* contractual problem is the most important one, then *(ii)* delays in work progress, *(iii)* time extensions, *(iv)* inadequate/ incomplete specifications, and *(v)* quality of design.

In 2016, Mahamid [46] conducted a questionnaire survey to identify the common direct and indirect causes of disputes in residential building projects. The questionnaire consists of literature developed list: 29 direct dispute causes and 32 indirect dispute causes for the survey respondent to rank them. The survey results are ranked based on their occurrence frequency to find the severity. The analysis provides top-five direct and indirect dispute causes, which are highly related to the dispute problems over the residential building projects in Saudi Arabia. According to the contractors, the top-five direct causes are *(i)* progress payment delays by the owner; *(ii)* unrealistic contract duration; *(iii)* change orders; *(iv)* poor quality of the completed works; *(v)* labor inefficiencies. At the same time, top-five indirect causes are *(i)* inadequate contractor's experience, *(ii)* lack of communication between construction parties, *(iii)* ineffective planning and scheduling of project by contractor, *(iv)* cash problem during construction, and *(v)* poor estimation practice [46].

Odeh and Battaineh [47] interviewed contractors and consultants to determine the most important causes of delays in a construction project with traditional contracts. From the contractor's and consultants' point of view, owner interference, inadequate contractor

experience, financing and payments, labor productivity, slow decision making, improper planning, and subcontractors are the top-ten most important causes of delays. The contractor also showed their concerns for contract clauses especially change orders, mistakes, and discrepancies in contract documents, major disputes, and negotiations.

In 2014, Baloyi and Agumba [48] conducted semi-structured interviews with construction insiders from South Africa to reveal the causes of disputes and their effects on projects. They further aim to determine suitable dispute resolution methods for each dispute. Based on the analysis result of acquired interview results, nine common cause of disputes are raised *(i)* poor communication, *(ii)* poor contract documentation, *(iii)* suspension of work, *(iv)* failure to understand, *(v)* correctly bid or price the work, *(vi)* bad weather, *(vii)* non-circulation of information, *(viii)* incomplete tracing mechanism for request information, and *(ix)* delay in extension of time. In terms of the resolution method, the majority of respondents chose the arbitration method to resolve them. In contrast, some respondents opted to use conciliation and mediation.

Mohamed [49] first gathered 140 causes of disputes through a comprehensive literature review. Then, it conducted a questionnaire survey to pick the most critical factors that caused the disputable claims and narrowed it down to 31 common causes. These common causes are classified into three major groups *(i)* behavioral problems, *(ii)* contractual problems, and *(iii)* operational problems. Through analysis of survey results, the researchers defined eight factors that converting claims to disputes. These factors are delayed interim payment from the client, qualification of teamwork, extension of time, incomplete drawing and specification, poorly written contract clauses, change orders, cooperation and communication nature among project team, and late supply of equipment and materials [49]. These studies pointed out poor contract documentation, and poor contract administration and management are the common issues in the construction industry regardless of geography.

Zhao, et al. [50] conducted the pair-wise comparison between the root causes of claims and disputes and various dispute resolution methods to provide the best possible resolution for disputes. Six root causes of claims and disputes from the literature are cost, duration, effectiveness, impact on benefits of the project, confidentiality, and flexibility of the process. The analysis study stated that prevention is the most effective method as it has the least impact on disputes in cost, public reputation, and delay. Despite numerous efforts, no sign of a decrease in the volume of disputes over the past years [30].

2.2) Standard Contracts as Source of Disputes

Modifying standard contracts to suit a specific project's needs can introduce a level of consistency and eliminate ambiguities. Nevertheless, standard contract documents, themselves, can be a source of contractual problems. Few studies are reported on clauses' clarity in general conditions, expression of contract provisions, and parties’ obligations in various types of standard construction contracts. Broome and Hayes [51] studied the clarity of NEC Engineering and Construction Contract (ECC) in terms of design and layout of contract documents, use and order of words within sentences, and relevancy to modern construction practice. The author

expressed that although the NEC ECC contract has improved and has more explicit terms expression than the previous contract form. Wright and Fergusson [52] studied the NEC (ECC) contract's benefit through a New Zealand case study and suggested more effective usage changes. The author described the NEC ECC contract achieved the expected business benefits (i.e., project management, contract clarity, and contract relationships). Only minor changes would require in the New Zealand environment.

Moreover, Ibbs and Ashley [53] conducted a questionnaire survey to understand the impact of contract clauses on various performance criteria such as cost, schedule, quality, safety, and owner and contractor satisfaction. The author analyzed the 96 clauses that affect the project performance by analyzing the survey result and provide 53 specific and practical recommendations to individual clauses for effective contract structuring. The standard construction contract documents are modified to suit the project requirement given by the owner. Sometimes, shifting all the contractors' risks by eliminating the clauses that share the owner and contractor's responsibilities. This kind of biased modification cause conflicts and disputes between parties. Therefore, Lee, et al. [35] reviewed the FIDIC contract terms and conditions and proposed the assessment model, identifying the missing contractor-friendly clauses to avoid future risks on contractors. The researcher used rule-based natural-language processing (NLP) for the proposed model, analyzing unstructured text data as a supportive way to detect them during the tendering stage. Besides, Chan and Ann [54] studied the clarity in the expression of design liability and contractual provisions between the designer and contractor in design-build projects' contracts. The study concluded that contracting parties' roles and responsibilities are not clearly defined by the contract terms and recommended improvement strategies in drafting the contracts.

Azghandi-Roshnavand, et al. [18] highlights the rising issues in administrative documents needs for modular construction and investigated the content and structure of three different design-build standard contracts (i.e., CCDC14, AIA141, and NEC3). The study examined these three contracts manually and compared them with one another, against the common sources of confusion in construction contracts. The study applied the text mining approaches to perform the contracts examining tasks and readability analysis. The essential clauses related to the transportation, inspection, and payment criteria of stored material and equipment outside the site are distinct requirements for the modular construction approach.

Fateh, et al. [17] aimed to formulate the form of contract for MOC, which will address the issues and challenges facing the modular contractor regarding the contractual perspective. To increase the adaptation of industrialized building system (IBS) in the Malaysian construction industry and reduce the various contract issues faced by modular players, having a standard contract is in demand. Lack of contracts, specifications, regulations, and standards that suit the IBS environment and processes are primary hindering reasons for IBS adaptation in Malaysia. During their preliminary survey, IBS consultants, clients, and contractors agreed that no standard contract forms to tailor IBS construction are the most challenging issues. Besides, lack of knowledge, lack of integration among players, lack of proper contract arrangement, expensive, lack of standard, and lack of machinery and supplier are other challenges for IBS. The literature stressed the necessity of a standard form of contract for IBS, considering its

unique, dynamic processes, resource allocation, risk exposure, and responsibilities between all parties.

2.3) Causes of Legal Disputes in Construction

Construction practitioners can have a better understanding by learning sources of contractual disputes from the past litigation, which in turn can help to minimize the number of cost-ineffective litigation claims as a means of dispute resolution. In view of Canadian construction disputes, Semple, et al. [55] studied 24 project claims in Western Canada to identify the causes of claims such as project delays and cost overruns. Furthermore, this study has proposed that contract drafters should carefully modify the contract clauses, especially in changes/extras, disputes, soil/site conditions, and delays. They are the most erroneous areas of causing claims and disputes.

As a recent effort, Chehayeb, et al. [20] analyzed Canadian court cases and classified their causes into twelve categories of Canadian Contract Documents Committee standard form of stipulated contract (CCDC 2-1994) and proposed a model to predict the litigation outcome based on the past litigation results. As a result, changes in the work, general provision, and payment sections are three-areas with the highest number of disputes. The proposed prediction system is called the Canadian Construction Claims Tracker (CCCT), which provides the users easy access to the past case-law claim information to predict the outcomes of possible future cases based on the past results of the Canadian Construction court cases.

Almutairi [56] also investigated litigation causes through qualitative literature analysis to determine the legal dispute in the construction industry. The study compared the nature of causes in Saudi Arabia and other countries such as Korea, the United States of America, Australia, Hong Kong, and the Netherlands to identify similarities and differences. Four common causes of litigation between Saudi Arabia and other countries are *(i)* Change orders, *(ii)* Change the scope of work, *(iii)* design issues, *(iv)* changes of site conditions and lack of clarity of contract conditions, while two distinct causes which only find in Saudi Arabia are *(i)* changing key personal responsibilities and *(ii)* clients are applying penalties on the contractor without investigating the reason for the delays. The study also directed that delivery method and practice can also cause litigation due to inaccurate expectations, miscommunication, and incorrect documentation [56].

Jagannathan and Delhi [57] performed a systematic literature survey to observe what factors make contracted parties go for litigation to resolve disputes. The researcher found that people's behavioral (PB) factors have a prominent impact on parties' litigation behavior. A poorly drafted contract contributes to worsening such behaviors between parties. The study explained that a well-drafted contract is necessary to solve disputes but manage people. Their behavior is more crucial to lessen the number of litigations in the construction industry.

Ramachandra and Rotimi [8] examined the documents on construction payment disputes filed at the High Courts in New Zealand. This study used a nonreactive document analysis technique to investigate the status of payment problems and possible mitigation measures. The empirical result showed that the Client and Contractor are often disputed trial parties in the

construction industry, with progress payment disputes and final payment disputes. Ramachandra and Rotimi [8] suggested two solutions to payment problems: changing upstream construction parties' attitude and adherence to payment-related legislation and contract forms. Above-reviewed literature is summarized in Table 1.

Table 1 Summarized List of Reviewed Literature

Remark	Problems	References	Literature	Survey	Claims	Litigation	Contract
COC	Causes of Disputes	Cakmak et al. 2014	✓				
		Mohamed et al. 2014	✓	✓			
		Zhao et al. 2014		✓			
		Mahamid 2016	✓	✓			
		Baloyi et al. 2014	✓	✓			
		Semple 1994			✓		
		Odeh et al. 2002		✓			
COC	Causes of litigations	S.Almutairi 2015	✓				
		Jagannathan et al. 2020	✓				
		Ramachandra et al. 2015				✓	
		Arditi et al. 1998				✓	
		Chehayeb et al. 2007				✓	
COC	Contract documents as source of disputes	Broome et al. 1997		✓			✓
		Wright et al. 2009		✓			
		Ibbs et al. 1987		✓			✓
		Lee et al. 2020					✓
		Chan et al. 2005	✓	✓			
MOC	Causes of Disputes, Analysis of MOC contract documents	Azghandi-Roshnavand, et al. 2019	✓				✓
MOC	Review formation of MOC Standard Contract	Fateh, et al. 2017		✓			

2.4) Gaps in the literature

Although previous research has broadly identified some root causes of disputes and claims in the construction industry, there are still existing literature gaps.

- There is not enough information to identify the correlation between common causal factors of claims and disputes in construction contracts and litigation cases.
- There is not enough information on the causes of disputes, particularly in the modular and off-site construction methods.
- There is a limited discussion of the causes of litigation claims in the construction context in Canada.
- There is no comprehensive framework to identify and quantify the sources of ambiguities to evaluate those occurrence frequencies in construction contracts.

The existing frameworks have either taken a niche perspective in evaluating specific disputes or have discussed the sources of contractual confusions qualitatively and subjectively.

It is challenging to apply the previous research results objectively and evaluate the risk of construction contracts' ambiguities. To address these gaps, in the rest of this study, we firstly review the sources of ambiguity as addressed by the literature, and we develop a framework to evaluate the sources of ambiguity systematically. We then apply the framework to relevant court case analysis from the Supreme Court of Canada (SCC) and Superior Courts (SC) of selected provinces to provide the causes of disputes in the Canadian construction industry and their level of importance.

Chapter 3 – Methodology

Figure 5 presents the flowchart of the proposed methodology, which involves data collection for literature and court cases using keywords within a specific period set and two-step analyses. In phase 1, the qualitative approach is applied to extract the sources of contractual disputes in conventional construction and modular construction documented in the selected literature. These sources of ambiguity are used to develop an analysis framework by classifying them into four levels of similarity, which are categories, subcategories, classes, and subclasses. Each class is quantified based on the frequency of identified ambiguities in the literature. In phase 2, Canadian court cases within the decision period for the past twenty years at the Supreme Court of Canada (SCC) and Superior Courts of four provinces: Quebec, Alberta, Ontario, and British Columbia are gathered from Canadian legal information institutes [58] and [41]. The contractual dispute cases are selected by analyzing the text data manually: types of legislation and a set of keywords based on the consideration of both COC and MOC projects. Project and background information are primarily analyzed to understand the nature of cases (i.e., parties involved, types of contracts), the motive of the filing (i.e., claim and counterclaim reasons), and issues be judged and final judgment. The motives of the cases are cross-examined with the proposed analysis framework developed in phase 1 to identify the higher occurrence category from the literature concerning the litigation analysis. The major classified causes of disputes in the MOC court cases are used to analyze interrelation with the general provisions of Canadian standard contracts stipulated price contracts in order to identify the relevancy of whether or not the standard contracts can address the dispute causes of the MOC. Furthermore, it can contribute to the preview formation of the standard contract documents for the MOC method of construction by the CCDC in the future.

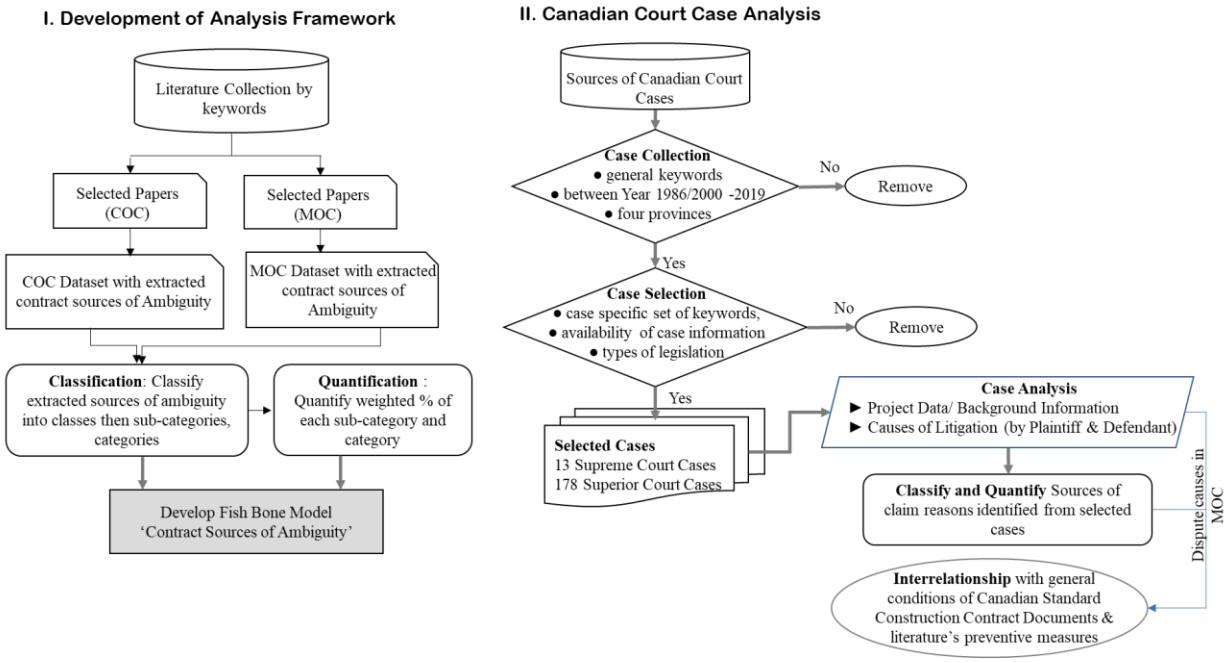
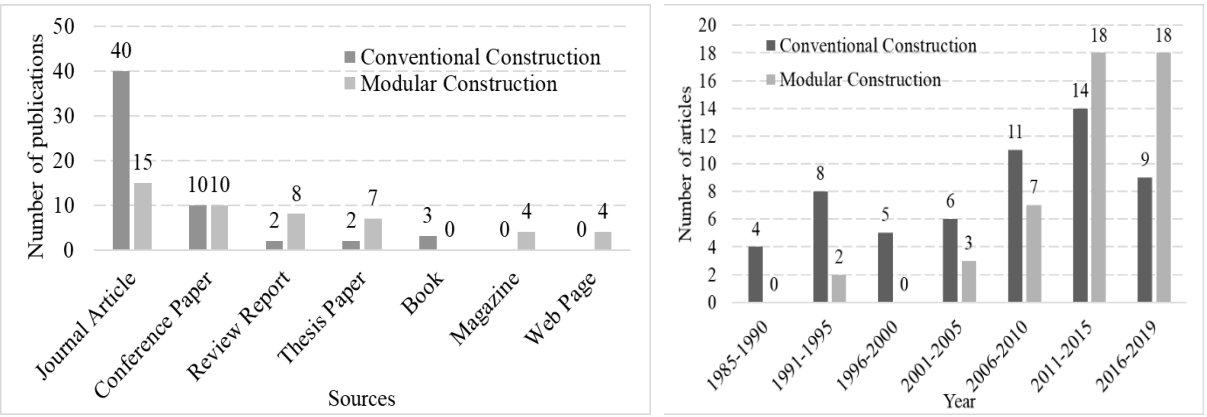


Figure 5 Overview of Research Methodology

3.1) Literature Survey and Analysis Framework

Primarily, articles are gathered using keywords search in the COC and MOC contexts. The search words for the COC are conventional, traditional, on-site, stick build construction, and search words for the MOC are modular, off-site, precast, prefabricated, industrialized building, and panelized construction. Since the proposed fishbone model represents the sources of ambiguity related to construction contracts, administration, and management, we use additional keywords such as 'construction contract', 'construction disputes', 'contract claim', 'litigation', and 'contract ambiguity' for broader coverage. The collected papers are published in journals, conference proceedings, periodical articles, book chapters, and review reports for the past 34 years.



(a) **(b)**

Figure 6 (a) number of articles per source of publication; (b) number of articles per year

A total of 105 articles are selected: 57 articles are related to COC, and 48 articles are related to MOC. As shown in Figure 6(a), the number of articles collected from the various sources of COC literature related to contractual disputes is constantly high. However, the most important finding represented in Figure 6 is that the researchers have been high attention to contractual disputes in the MOC since the number of articles is significantly increased in journals and conferences for the past ten years. As seen, there has been a growing trend in the number of publications on the topic over the past three decades (Figure 6-b), and the majority of the publications selected in our study are journal articles (Figure 6-a). There are 28 different journals from which we selected the above-mentioned articles, and Table 2 provides the distribution of 55 articles over different journals. 'International Journal of Project Management' and ASCE 'Journal of Construction Engineering and Management' are at the top of the list with nine papers each, together accounting for more than 35% of our database.

As shown in the table, there are 19 journals (other*), from each of which we only have one paper in our database. These journals are 'Advanced Engineering Informatics'; 'Ain Shams Engineering Journal'; 'American Journal of Civil Engineering and Architect'; 'Arab World English Journal (AWEJ)'; 'Case Western Reserve Law Review'; 'Computers & Structure'; 'Journal of King Saud University-Engineering Sciences'; 'Journal of Public Procurement'; 'Journal Alam Bina'; 'KSCE Journal of Civil Engineering'; and 'Waste Management and Research'; 'Applied

Mechanics and Materials'; 'Asian Journal of Environment-Behavior Studies'; 'Automation in Construction'; 'International Journal of Emerging Sciences'; 'Journal of American College of Construction Lawyer (ACCL)'; 'Journal of Architect Engineering'; 'Journal of Civil and Environmental Engineering'; and 'Research Journal of Institution of Structural Engineers'.

Table 2 Break-down of selected journal articles

Name of the Journals	Number of Articles
International Journal of Project Management	9
J. of Construction Engineering and Management	9
J. of legal affair & dispute resolution in engineering and construction	4
The Arbitration Journal	3
Canadian Journal of Civil Engineering	2
Journal of Management in Engineering	2
Journal of Professional Issues in Engineering Education and Practice	2
Construction Management and Economics	3
J. of Computing in Civil Engineering	2
Others*	19
Total	40

*See the Appendix for the full list of these journals

The selected articles cover a wide range of research topics, but they also come from different countries worldwide. Studies of local industry practices from Canada, Malaysia, the US, China, Sweden, New Zealand, Egypt, Saudi Arabia, and Singapore are included in our database. Table 3 shows some of the main topical clusters in our database of publications, along with the counts and some examples of papers in each cluster.

Table 3 Topical clusters of research covered by our selected articles

Research Focus	No. articles	Example Articles
Contract documentation	24	[26, 52, 59, 60]
Contract administration, claim management, cost management, procurement method	12	[20, 61, 62]
Dispute management, conflict management	21	[22, 46, 63]
Risk management	10	[64, 65]
Construction delays		[66, 67]
Design management	4	[68, 69]
definition & classification	1	[70]
Construction practices, construction processes	13	[71, 72]
Modular construction and industry overview	20	[13, 73, 74]

After collecting the publications, we performed a comprehensive review to extract the unique sources of ambiguities in the contractual context, referenced by the publications as potential causes of disputes. A total of 104 unique sources were identified from the 396 indications of dispute causes in our comprehensive literature review. We consider each of these unique sources as a "sub-class" (i.e., the lowest level of our categorization). In the next step, we clustered these sources into the classes, subcategories, and categories. The detailed approach is explained in the following.

As a starting point, we used the conceptual framework formerly proposed by Azghandi-Roshnavand [75], which comprises five categories: 'Language'; 'Contract'; 'Design'; 'Stakeholders'; and 'External Factors', for the classification of ambiguity sources in construction contracts. We modified the structure of branches (subcategories) based on the information extracted from our database and presented the modified model as a fishbone diagram shown in Figure 7. The procedure entailed grouping similar/related identified sources of ambiguity into the same classes and assigning them to the subcategories of that model. Wherever the existing subcategories were not enough, we introduced new subcategories. This process was done within several rounds, and in the end, after a quantitative analysis (shown in Figure 8), we tried to re-assign the classes of those subcategories that did not have enough support into other relevant ones unless no subcategory could be found to sufficiently explain that ambiguity source.

Figure 7 The Proposed Fishbone Diagram from Literature Analysis

(subcategories and classes identified in ◆ COC literature only and △ MOC literature only)

As a result, there are 15 subcategories, so each category consists of two to four subcategories. The proposed fishbone diagram has four levels: 'Categories' (for the five top branches of the model which were introduced by [18]); 'Subcategories' (subsidiaries of each category); 'Classes' (clustered under each subcategory); and 'Sub-classes' (clustered under each class to identify the sources of ambiguity extracted from the literature). In Figure 7, categories (single-digit), sub-categories (double-digit) and classes (triple-digit) are introduced.

3.2) Detailed Explanation of Analysis Framework

A more detailed explanation of each category, its subcategories, classes, and sub-classes of the proposed fishbone model will be described in this section.

(3.2.1) Category 1 – contractual language

This category mostly focuses on the issues with the linguistic 'form' of construction contracts, under three main dimensions (i.e., subcategories). Firstly, the subcategory' Ambiguity of Legal Language' covers classes of sources such as the contract's formal language, contract wording issues, and legal text layouts. Broome and Hayes [51] identified that word order, rationale clauses within a contract, and design and layout of the whole contract documents are vital factors to judge contracts' clarity'. In addition, Ali [76] introduced that the legal text layout, i.e., the layout design of legal texts' writing and typography, is the most concerning issue when translating standard contracts initially written in English to other languages. Secondly, the 'Ambiguity of Technical Jargon', which is commonly used in drafting construction contracts is divided into the use of poor-quality jargon, and problems with the use of improper terminology in the contract. The needs for a uniform definition of technical and managerial terms, upon which exists a mutual agreement among the contracting parties, has been emphasized in the literature [70]. Excess usage of legal terms in the contracts, as well as using semi-legal jargon instead of industry-wide used terminology, often cause misrepresenting among contract entities [51]. Thirdly, the 'Linguistic Attributes' of a contract can become a source of additional confusion and ambiguities. Linguistic challenges and terms implied but not mentioned in an explicit language and the use of vague language are classes of this subcategory. Gilson, et al. [77] reported that language used for a contract should be clear enough, straightforward, and easy to interpret since the contract's formal language will provide the basis for reasoning when the Judge decides to whether consider or disregard the claims in a court of law. In addition, Wright and Fergusson [52] reported that the wording of the contract conditions has a higher change impact on the project cost (as much as 5% of the total budget) than the contractual arrangements.

(3.2.2) Category 2 – contract form and content

The 'Contract' category of the fishbone model comprises four subcategories. Firstly subcategory is the 'Mismatched Contract Type', which refers to selecting a contract type that is not suitable for the project delivery method. It is shown in the literature that such a mismatch is a common cause of claims and disputes. On the one hand, researchers such as Fateh, et al. [17] have emphasized selecting proper procurement routes for projects. The associated ambiguities in this regard are clustered in an 'unfavorable procurement and contract system'.

The literature has put extra emphasis in this regard on the industrialized and modular construction projects, particularly when it comes to the precast and modular contractors.

On the other hand, matching the right contract form to support the selected procurement and delivery method is, in many cases, a challenge. While the industry understands the importance of choosing the correct type of contract which suits a project's requirements and circumstances, it is rarely done properly in the planning process. The need for guidelines for contractual arrangement, particularly in modern construction (such as industrial and modular) projects, is highlighted in the literature [17].

Having an incomplete scope definition in the contract may cause problems in the contracting process and make the contract incomplete [78, 79]. Similarly, unclear elaboration of project requirements in contract documents will create complications among the contracting parties [78]. The comprehensive subcategory 'ambiguity in contract terms' covers inadequacies in contract clauses and comprises seven core aspects (i.e., seven classes), with twenty underlying sources of ambiguities (i.e., subclasses) under them. The classes include unclear contingency clauses (risk identification and allocation; contingency planning); unclear scope definition; ambiguous clauses related to the change management (i.e., unclear change conditions and verbal instructions); unclear payment terms; unclear payment terms for change or additional works; poorly defined general provisions (i.e., poorly defined contractual obligations, duties, and liabilities of parties, or unclear remediation provision); excessive contractual variations (and re-negotiation after signing the contract); and inadequacy of bonds and insurance (surety, liability risk, and warranty provisions) to cover the parties' failure.

'Missing information' is another source of ambiguities identified by the literature as a source of dispute. It breaks down into subcategories such as 'incomplete documents', 'lack of quality management', and 'inadequate and incomplete specifications' in the contract. A provision for quality maintenance and control should be clearly described in the contract terms to prevent the potential dispute consequences [80]. Insufficient specifications in conventional construction and the lack of separate specifications for modular and off-site construction are pointed out in this regard by the literature.

Since each construction project is unique, standard contracts, as mentioned earlier, are modified to suit the requirement of the individual project [10]. This opens the gate to a range of issues which are summarized under the subcategory 'Modification Issues'. A considerable number of articles precisely mentioned providing redundant information in the mass of contract documents as one of the most important dispute reasons. The same is true for inconsistent technical information, discrepant and erroneous information, and inconsistent contract terms. Nasrollahzadeh, et al. [81] described that recycling the contracts from previous projects without proper modifications as one of the top barriers frequently occurring in the industry.

Furthermore, ill-defined contract procedure [52], non-practical conditions [51], and changes to the standard conditions and add non-standard conditions [78] are other classes under this subcategory, identified in the literature. Differences between the contract descriptions of the site condition and the actual conditions are stated as a frequent reason for claims [54].

Moreover, unfair contract terms, biased contractual clauses [82], catch-all clause [64], and poorly written contract clauses are the sources (subclasses) that we have included in the class unreasonable contract clauses, which can ultimately result in financial losses [59].

(3.2.3) Category 3 – design-related confusions

Construction insiders often encounter design-related confusion, including 'Design Deficiencies' such as design errors; incompleteness; complexity; and excessive design changes, which are found to be root causes of claims and disputes by the literature [59]. In modular construction, volumetric modules are transported from a production factory to the construction site. Therefore, depending on the choice of shipment method, there would be limitations and constraints to the module design [83]. As such, we defined a separate subcategory for design optimization in modular construction, under which classes such as design limitation of modules, design standardization and repetition, and module damage and interfacing problems are included. Furthermore, Shahtaheri, et al. [69] have identified that the systematic design of fault-tolerant systems is required to minimize reworks during the assembly of modules on-site.

(3.2.4) Category 4 – project stakeholders as a source of confusion

Different professionals and parties with various expertise and backgrounds usually integrate as a project team toward the shared goal of successful completion within budget and time frame. Given the multiplicity of the involved parties in construction contracts and rather long duration of construction projects, uncertainties and risks are expected to be faced in various project stages [84]. 'Poor contract draftsmanship' is often the source of ambiguity among parties involved. The contract drafter's knowledge and familiarity with contract terms, current and innovative technologies, and prior experience in contract preparation are among the main classes in this sub-category. Ineffective contract management and administration is another class under this sub-category, in which administrative sources of ambiguity are collected. The subclasses include poor contract administration, improper contract management, lack of proper procurement schedule and strategy, failure to enforce the contract provisions, and poor communication among contracting parties. Iyer, et al. [85] found that a temporary stoppage is one of the most frequently mentioned reasons as a cause of proceeding for an arbitration. In addition, the lack of mutual understanding among contract parties and misrepresentation or misinterpretation of contract documents by contract administrators often leads to financial disputes [37]. Furthermore, risks associated with contracting parties' performance (e.g., due to unclear definition of acceptance or performance criteria and lack of awareness of limitations imposed), as well as unrealistic and illogical expectations, are other reasons for disputes between client and contractor.

(3.2.5) Category 5 – the effect of external factors

When listing potential sources of ambiguities in construction, the role of external factors cannot be ignored. Contradictions among legal provisions at local, provincial, national, or international levels (as applicable) and discrepancies between local building laws and insurance

policies can cause disputes. There are rooms to improve and revise in 'regulatory framework', 'national policy', 'standards and regulations' to fit conventional and modular construction needs. Volumetric transportation difficulties in modular construction can negatively affect the overall control of the project's cost, schedule, and productivity [86]. As such, lack of proper supply chain management and logistics planning, as well as transportation restrictions and/or contradictory transportation regulations among different territories, can become the source of claims and disputes. In addition, transportation insurance coverage and tower crane lifting limits are often stated reasons for disputes in many modular projects. Lastly, the level of local industry maturity and the adoption level of modern/efficient construction practices (e.g., digitalization, industrialization, and automation) in the workplace can strongly affect the progress of construction. It must be overseen and taken into consideration in the contract.

3.3) Quantify the Sources of Ambiguity

Once the proposed fishbone model is developed, the weighted percentage of each subcategory as a quantitative method is calculated to identify the level of seriousness based on the total number of indications (i.e., 396 sources of ambiguities). Each sub-category's support level (weight) is the ratio between each sub-category frequency, and the overall total frequency of sources of ambiguity is expressed as a percentage.

$$\text{support level (weight)}\% = \frac{sum\ of\ frequency\ at\ each\ subcategory}{overall\ total\ frequency} \times 100$$

The result for each sub-category is presented in the bubbles in Figure 8, and the summary percent of major categories are presented at the top-right corner of each category within hexagon boxes and differentiate in color for MOC and COC. The ‘overall total frequency’ used to divide are 243 indications from COC literature and 153 indications from MOC literature.

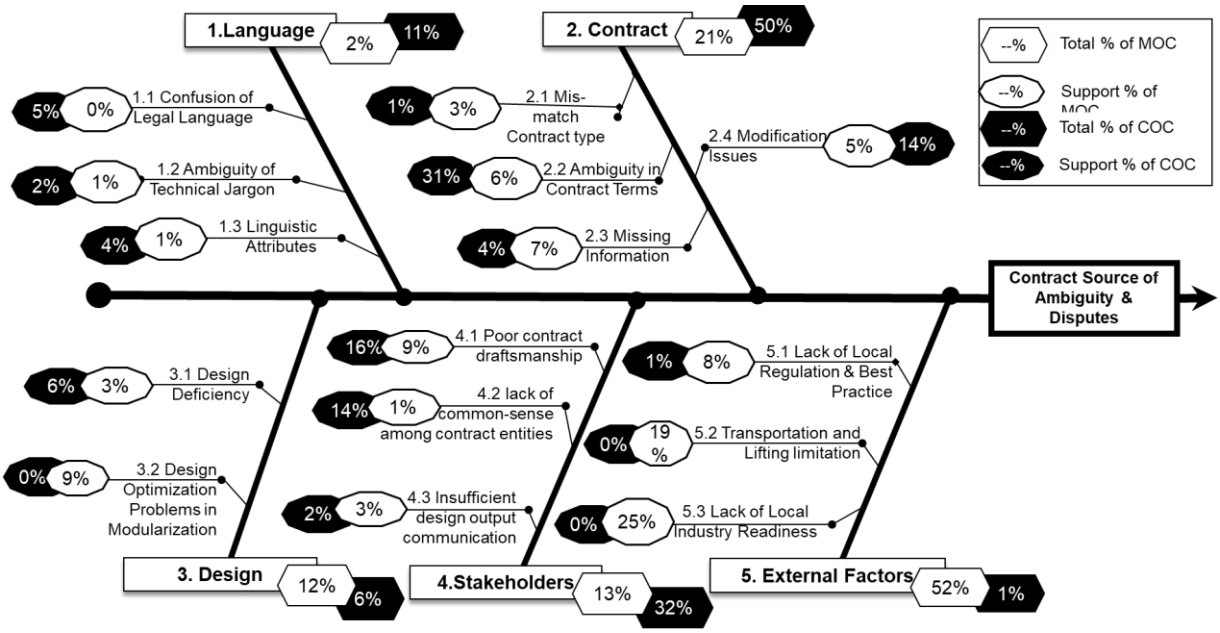


Figure 8 Quantitative analysis of the reviewed literature within the proposed framework

Figure 8 illustrates the level of seriousness of each subcategory in accordance with the COC and MOC. In this respect, the quantified fishbone model represents that the most erroneous source is the 'Contract' category (38%), and the second rank is the 'Stakeholders' category (25%). In view of these top two categories, all subcategories, are crucial but ‘ambiguity in contract term’, ‘poor contract draftsmanship’ and ‘modification issues’ are top-three important contract sources of ambiguities. The subcategories concerning knowledge, experiences, and performance of contract interpretation and construction practitioners are clustered in the ‘Stakeholder’ category. The third rank in the most erroneous source is the ‘External Factors’ category accounting for 21%. Comparing to the top-two categories, this category involves the subcategories, which are major erroneous sources of disputes in the MOC. At this junction, it should be noted that the lifecycle of the MOC mainly consists of three phases, which are the manufacturing process to produce modules, transport them to on-site, and lift modules by a crane for assembly. In this respect, the MOC needs well-planned transportation and lifting management for facility components such as penalization (e.g., walls, floors, and roofs) or volumetric modules. However, these managers may have difficulty due to restrictions and limitations of either transportation method or differences in transport rules depending on local areas or countries. In addition, the MOC is still a new trend for practitioners in the construction industry that have a lack of industry readiness (e.g., shortage of experienced personnel) and lack of regulations and best practices (e.g., lack of modular building codes) for modularization. The quantified figure can provide the level of importance for the sources of ambiguity (according to the literature) for raising awareness.

3.4) Collection and Selection Construction Court Cases

In the second phase, to evaluate the impact of each of the ambiguity sources in action, we analyze the construction disputes, ending up in court cases. This can provide a bottom-up

overview of each class's contribution level by relating the motion of proceedings for court cases with our presented model. In this section, the detailed collection approach selects contractual disputes court cases from Canadian Courts to perform case analysis. The selected court cases are analyzed to assess the impact of each source of confusion discussed in the previous section on the construction litigation claims and disputes. This can provide a bottom-up overview of each class's contribution level by relating court cases' motions with our presented model.

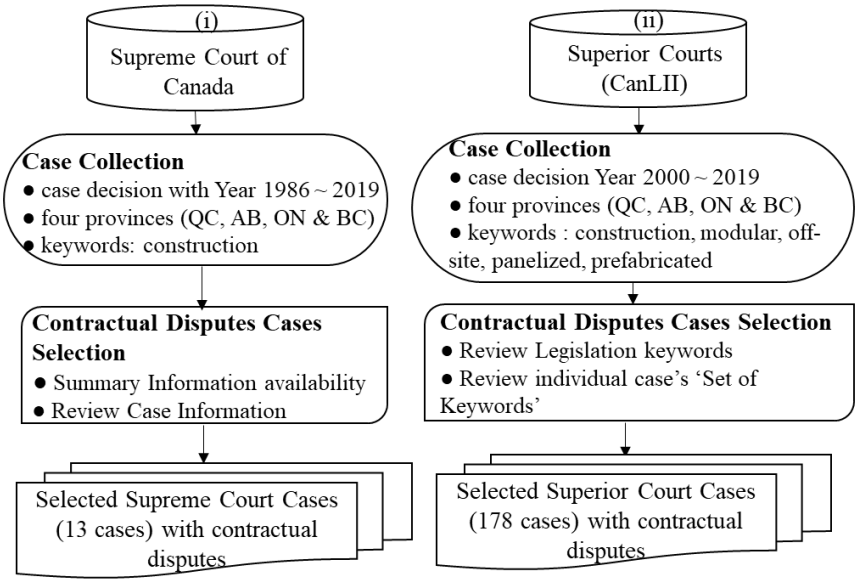


Figure 9 Canadian Court Cases Collection and Selection Procedure

Supreme Court of Canada (SCC) is known as Canada's final court of appeal at the Canadian Judicial System's apex level. The Provincial and Territorial Superior Court is described as the lynchpin of the Canadian judicial system. The cases are collected from these two levels of courts. The electronic version of case information is accessible on the SCC official webpage and Canadian Legal Information Institute. Figure 9 illustrates the detailed procedure of Canadian court cases collection and selection *(i)* from Superior Courts and *(ii)* from the Supreme Court of Canada (SCC).

(3.4.1) from the Supreme Court of Canada (SCC)

Firstly, we have focused on the SCC cases since they are usually the most severe litigation cases. When a dispute arises among the contract parties, both parties follow the dispute resolution mechanism stated by the contract, arbitration procedure, and litigation. The litigations are collected from the SCC, and each case has a unique case number and case name, which is formatted as the Plaintiff Vs. Defendant. Each case's docket information table provides the complete list/ record of judicial proceedings, from where we extracted the information for litigation duration and proceeding steps. A total of 30,500 cases are listed from the ten provinces and three Canadian territories on the SCC web page. We narrowed down the number of cases to those within the defined topical, temporal, and geographic scope. In the first step of filtering, 285 cases having the keyword 'construction' in their title were selected from different

provinces and territories (except Nunavut and Northwest Territories). There are 115 cases in Quebec; 75 in Ontario; 25 cases in Alberta and British Columbia (each); 13 cases in Saskatchewan; 11 cases in Manitoba; 9 cases in Nova Scotia; 5 cases each in New Brunswick, Newfoundland, and Labrador; and 2 cases in Yukon Territory. British Columbia, Ontario, Alberta, and Quebec are expected to have the most significant growth in their construction industry between 2020 and 2021 [Build Force 87]. Accordingly, and based on the number of cases coming from these four provinces, they were selected for further scrutinizing in our study (a total of 240 cases). Also, in this study, we exclude the cases with a 'close file date' earlier than January 1st, 1986. The close file dates were observed through the docket tables to understand the timeline and process of court cases. Ten cases with a close file date before 1986 were identified and excluded.

Ninety-eight (98) out of the 230 cases do not have any case information on the SCC website, and another eighty-two (82) were listed with no proceedings. Both of these groups were eliminated from the cases due to the lack of available information, leaving a pool of fifty (50) cases to be analyzed. We performed some statistical analyses (such as the frequency of different entities involved in litigation) through these 50 cases. However, in order to focus on the 'Contract' category of our framework, we further reviewed the keywords and proceedings of each case.

Our literature analysis stated that the 'Contract' category has the highest weight among other categories; hence we scoped the subcategories and classes of this category. The irrelevant ones were filtered out by reviewing the keywords and case information of the remaining 50 cases. Examples of keywords used for elimination are *'bankruptcy'; 'insolvency'; 'administrative law'; 'labor law'; 'labor relation'; 'commercial law' (call for tender); 'procedural law', 'criminal code'; 'divorce act'; 'family law act'; and 'federal child support guidelines'.* As a result, a total of 13 cases at the Supreme Court level satisfied the final stage of our selection criteria, to be investigated in full detail. Nine out of thirteen cases are filed at SCC as applications for leave to appeal the judgment from the Court of Appeal; two cases are applied to present new evidence; one case is to request for authorization of judgment from the Court of Appeal, and the remaining one is applied for summary dismissal of the appeal. The cases included eleven new building construction projects, one heavy industry construction project, and one repair and renovation work. The information of these cases, including the type of appellant and respondent entities, and the reason for filing/ motion of proceedings, can be seen in the next section (Table 9).

(3.4.2) from Superior Courts

There are not sufficient court cases related to construction litigation at the SCC to evaluate the sources of ambiguities in the proposed fishbone diagram. Therefore, this study extended the case collection and selection to the Superior Courts, which are the highest courts at each province to review Provincial/Territorial courts' decisions. This study uses the Canadian Legal Information Institute, a comprehensive resource for accessing court case information, including court judgments from all Canadian courts [58], to efficiently collect the Superior court cases regarding contractual construction disputes. Within the past twenty years at the superior court level, the construction dispute cases are collected using the document search keywords:

modular construction, off-site construction, panelized construction, prefabricated construction, and heavy industrial construction MOC. It works by default treating the space between the two words (keywords) as logical “and,” meaning that the documents/cases include the word ‘modular’ and the word 'construction' can be retrieved. Therefore, even though our keywords focus on modular construction, the collected court cases include conventional construction method projects and modular construction projects. Table 4 represents the number of cases collected with the selected keywords at the Superior Court of all Canadian provinces. As a result, a significant number of court cases are found in three provinces: British Columbia (BC), Ontario (ON), and Alberta (AB). In addition, this study adopts the Superior court cases from these four provinces since Build Force Canada (2020) reports that BC, ON, AB, and Quebec (QC) are the most expected significant growth in the local construction industry (2020-2029). In this respect, there are a total of 4708 court cases, which are 2266 cases in BC, 1335 cases in ON, 925 cases in AB, and 182 cases in QC based on the consideration of MOC and COC.

Table 4 Number of Court Cases by Keywords and Provinces

Keyword / Provinces	modular & construction	off-site & construction	heavy industrial & construction	prefabricated & construction	Panelized & construction
British Columbia	100	170	889	45	1062
Ontario	30	133	435	26	711
Alberta	40	72	281	15	517
Saskatchewan	14	24	114	5	173
Nova Scotia	7	27	144	5	161
Newfoundland and Labrador	1	18	87	4	158
Manitoba	2	9	73	1	140
Quebec	6	10	52	11	103
New Brunswick	11	11	60	7	82
Prince Edward Island	1	2	16	1	20
Yukon Territory	2	1	15	0	19
Northwest Territories	1	5	3	0	13
Nunavut	0	1	2	0	4
Total	215	483	2171	120	3163

A more significant number of cases are found in these three provinces: BC, ON, and AB at the Superior Courts as per Table 4. However, British Columbia (BC), Ontario (ON), and Quebec (QC) are reported to have the most expected significant growth in the local construction industry in the coming years. At the same time, Alberta (AB) is being forecasted to have more robust growth in the latter scenario period (2020-2029), according to Build Force Canada 2020 [41]. Although the case quantity in Quebec is relatively low at the Superior Court, it appears to have the highest appeal quantity at the SCC. Therefore, court cases from these four provinces: QC, ON, BC, and AB, are selected for further analysis. The names of each court are Superior Court of Quebec, Superior Court of Justice-Ontario Courts, Court of Queen's Bench of Alberta, and Supreme Court of British Columbia. A total of 4708 cases that comprise the document text

keywords are gathered; these are 2266 cases in BC, 1335 cases in ON, 925 cases in AB, and 182 cases in QC. These 4708 cases include not only the COC project delivery but also MOC project delivery.

Since the 'Contract' category has the highest percentage (weight) among the five categories in the proposed quantified fishbone diagram, this study focuses on reviewing the contractual dispute court cases instead of the construction accidents and construction labor union cases. It is worth to be noted that each court case provides a set of keywords and legislation references. Based on this information, the 4708 court cases are filtered to acquire contractual court cases. Some example sets of keywords used to eliminate the cases are: *'software, data, copyright, hospitals, evidence,' 'bylaw, kennel, dogs, noise, barking,' 'children, spousal support, income, friends, horse,' 'creditor, trustee, proceeding, standing, bankrupt.*' Besides, some example of *'legislation reference' used to eliminate the cases is 'Divorce Act,' 'Criminal Code,' 'Bankruptcy and Insolvency Act,' 'Family Relations Act,' 'Family Law,' 'Federal Child Support Guidelines,' and 'Infant Act'*. As a result, 178 contractual construction court cases out of 4708 court cases are selected for further analysis. Figure 10 presents the distribution of the number of cases in each province over the analysis period.

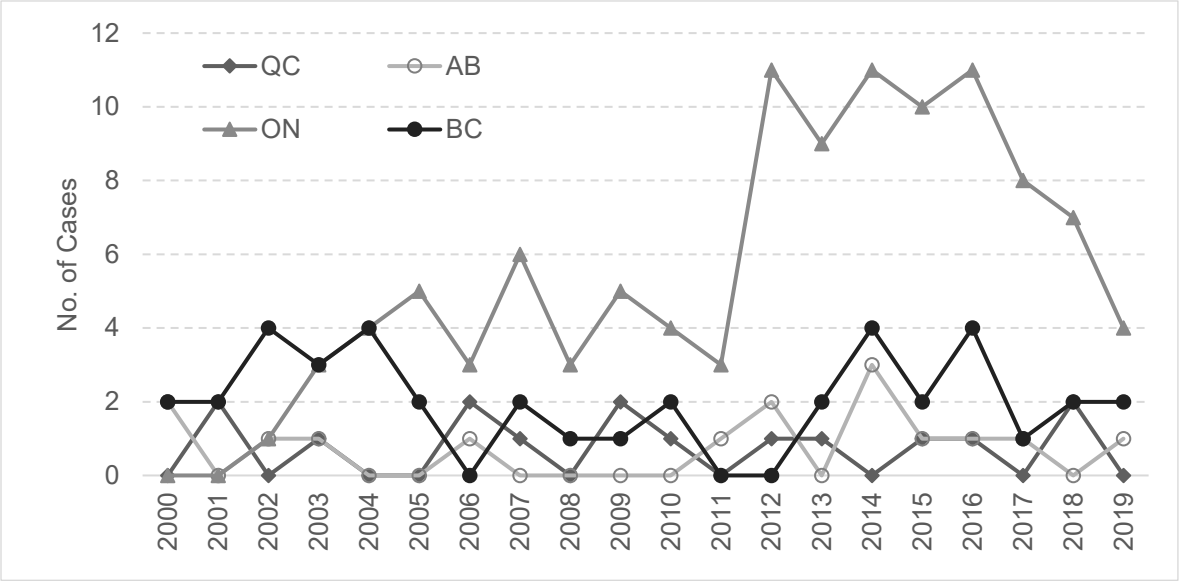


Figure 10 Number of Cases in each province over twenty years

Among selected court cases, Ontario has the highest number of contractual disputes cases (108 cases out of 178 cases). The growth of the numbers has rocketed up, starting between 2012 and 2016. In Figure 10, except for the number of cases trend in Alberta, which is constant over the analysis period, British Columbia and Quebec trends have increased numbers in the last ten years. In the next section, collecting case analysis and extracted sources of disputes will be discussed.

Chapter 4 – Construction Court Cases Analysis

We analyzed the selected SCC cases through our proposed framework, and this section describes the results. Analysis of Superior Court cases will be presented primarily then followed by the analysis of Supreme Court cases.

4.1) Analysis of Selected Cases from Superior Courts

The project data and background information are examined primarily to understand the nature of each case thoroughly. This information analysis provides the nature of cases and the state of litigation that occurred in the Canadian construction industry for the past twenty years.

i. construction methods of delivery (i.e., COC and MOC)

ii. types of contract (i.e., unit price contract, stipulated price contract, and cost-plus fee contract)

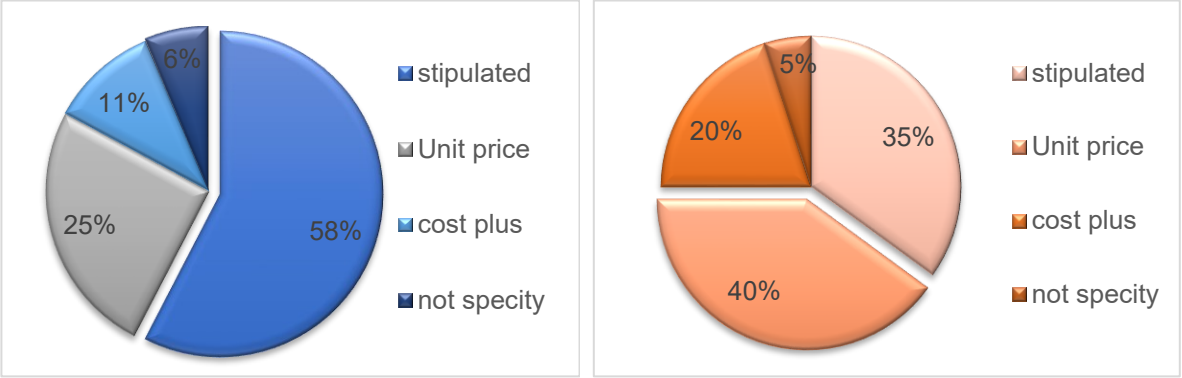
iii. forms of agreement (i.e., written contract, letter of award, standard form of contract, purchase order, and subcontract)

iv. trial parties (i.e., client, general contractor, consultant, and subcontractor), and

v. monetary dispute figures (i.e., claim amount vs. final judgment award amount)

vi. litigation process (i.e., whether cases leave to appeal at the upper-level courts)

Among the 178 court cases, there are 20 cases for MOC projects and 158 cases for COC projects and their sub-trades. These cases are disputes in different projects from new construction projects, such as commercial buildings, residential buildings, healthcare services; massive construction projects such as bridges, highway construction projects; and renovation and rectification projects.



(a). Court Cases with COC **(b)**. Court Cases with MOC

Figure 11 Types of Contract used in Selected Superior Court Cases

As shown in Figure 11 (b), modular home or prefabricated house projects have used the stipulated price contracts (35%), and unit price contract (40%) is used for the supply and

installation of precast components (such as precast panels, precast staircases, precast structural members). The cost-plus fee contract (20%) is adopted for repairing and renovation projects and project management service among MOC project cases. Among COC court cases, the highest number of court cases (58%) are found in a stipulated price contract. A moderate number of court cases use unit price contracts (25%) and cost-plus fees contracts (11%). It is worth to be noted that there are some court cases in which contracted parties have conflict opinion over the stipulated price or cost-plus contract due to the lack of contract type information in their contracts. In this respect, these cases are labeled as 'not specified' in both MOC and COC. The study then examined how trial parties formalized their business relationships for performing the construction works. Figure 12 presents the distribution of selected Superior Court Cases, 178 cases in total.

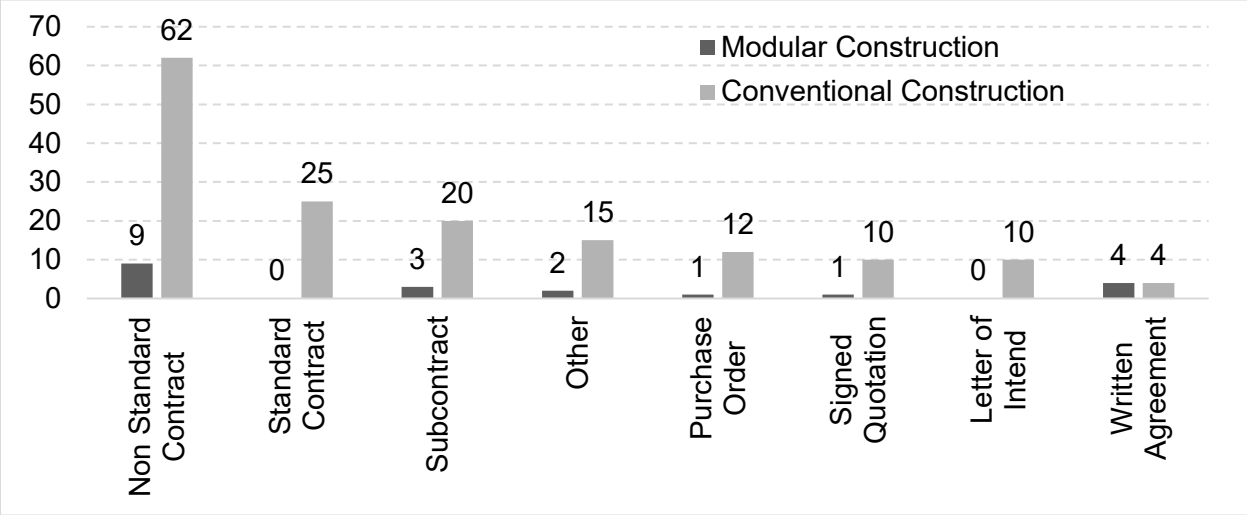


Figure 12 Distribution over the Forms of Agreement and method of construction

As a continuous effort to identify the project information in the selected court cases, this study analyzes how trial parties formalized their business relationship (i.e., the form of agreement) in practice. In this respect, MOC projects have not used any standard contract documents but non-standard contracts (9 cases) and written agreements (4 cases) since there are no standard contract documents reflecting the features of the MOC. In contract, COC projects have adopted standard contracts (25 cases). Although construction projects with non-standard contract documents may have high risks of causing contractual disputes, the COC projects have mainly used non-standard contracts (62 cases).

To investigate the types of parties who file the litigation claim (i.e., plaintiff types) and the types of parties who often get sued (i.e., defendant types), as shown in Table 5, the general contractors as plaintiffs and clients as defendants have the highest number of disputes cases in both COC and MOC projects. These parties are generally the signed parties on the prime contracts to formalize their business relationship for projects. The type of construction parties is defined using generalized terms such as Client, General Contractor, Consultant, Subcontractor, Insurance, and Sub-subcontractor. For instance, the term Client represents the client, owner,

developer, the city. In contrast, ‘General Contractor’ represents builder, general contractor, contractor, prefabricated house contractor.

Similarly, the term subcontractor represents the various trade subcontractors, including precast components suppliers and suppliers; the term ‘insurer’ represents the insurance company. The term ‘Consultant’ refers to architects, engineers, and consultants. There are few cases involved with sub-subcontractor, which refer to the trade contractor who has a contract with the project’s subcontractor. The trial parties in which plaintiff and defendant formally involved parties in dispute.

Table 5 Type of Trial Parties among Selected Superior Court cases

Modular and Off-site Construction (MOC) Project Cases	*Plaintiff Types*	General Contractor	Subcontractor	Client	Consultant	
	Defendant Types	Client (7) Subcontractor (1)	Client (3) General Contractor (2) General Contractor+ Insurance (1)	General Contractor (3) Subcontractor (1)	Client (2)	
Conventional and On-site Construction (COC) Project Cases	*Plaintiff Types*	General Contractor	Subcontractor	Client	Consultant	Sub-Subcontractor
	Defendant Types	Client (72) Subcontractor (5) Insurance (3) Consultant (1) Client+ Consultant (1)	General Contractor (27) Client (8) Insurance (1) Sub-Subcontractor (2)	General Contractor (15) Consultant (8) General Contractor+ Consultant (2) General Contractor+ Insurance (2)	Client (5)	Subcontractor (1)

Furthermore, this study analyzes the monetary disputes in MOC court cases to overview the original contract amounts, dispute amounts, and final judgment or entitlement at the end of the trial. The monetary dispute is the primary reason that enacts the plaintiff to go for the court. As shown in Table 6, court case C1 indicates that the tort of conversion claim has the highest amount filed by the plaintiff party (sub-contractor) against the client due to the general contractor's bankruptcy. When the plaintiff and defendant disputes for the entitlement of extras and changes in works, the disputed amount can be over the original contracted amount (see C3). Furthermore, defect dispute is not vital causation in MOC court cases but the COC court cases that have contract termination or work stoppage since the general contractors and clients have different opinions regarding acceptable levels of quality in works and workmanship. In addition, this kind of dispute can increase the claim amount significantly than the actual work amount at the court (see C15). Violation of the contracts leads to an increase in large amounts of claims due to various damages (e.g., loss of profit on uncompleted work, business loss, and a damaged reputation) on top of the original contract dispute amount (see C2 and C12). Further for final judgment, in 30% (6 out of 20 cases), the plaintiff success with a full entitlement of their claim, 25% of cases are awarded more than 60% of plaintiff’s claim amount, while 35 % of cases with plaintiff’s partially

successful in their claim with less than 50%. The remaining 10% are awarded in favor of the defendant.

Table 6 Monetary Dispute of MOC Court Cases

Case #	Original Contract Amount	Plaintiff's claim	Defendant's Counterclaim	Plaintiff's entitlement	Defendant's entitlement	Type of Disputes (by Plaintiff)
C1	23,000,000.00	2,770,000.00	-	502,000.00	-	the tort of conversion
C2	2,351,600.00	1,680,000.00	-	1,677,400.00	-	to reimburse the extra cost to complete the work
C3	789,000.00	974,800.00	-	412,290.00	-	change and extras entitlement
C4	N/Av	288,400.00	-	-	-	unpaid for supplied material
C5	281,000.00	200,000.00	-	22,800.00	-	damages due to negligence performance (misalignment)
C6	145,000.00	199,900.00	127,000.00	125,200.00	-	entitlement of insurance (labor and material bond)
C7	203,400.00	191,300.00	1,600.00	46,440.00	-	unpaid amount for work done & extras
C8	422,300.00	179,800.00	62,500.00	117,300.00	-	decline to make final payment; unpaid change & extras
C9	670,000.00	159,600.00	-	159,600.00	-	unpaid balance for work done
C10	318,300.00	149,700.00	-	132,500.00	-	unpaid balance for work done; compensation on basis of unjust enrichment
C11	N/Av	134,400.00	-	134,400.00	-	unpaid balance for work done; deny agreed price
C12	317,500.00	129,700.00	39,900.00	63,720.00	37,740.00	compensate for cost overrun; damages by delay; additional incurred cost+ for troubles
C13	56,400.00	81,400.00	-	53,480.00	-	reimbursement of installment; exemplary damages (fail to deliver the house)
C14	96,050.00	78,300.00	171,100.00	10,000.00	-	not paid balance of agreed subcontract price
C15	N/Av	45,900.00	29,700.00	16,100.00	-	dispute type of contract (fixed or cost plus); defenciencies
C16	66,000.00	43,000.00	48,000.00	42,800.00	-	termination of contract; unpaid balance for work done
C17	N/Av	40,300.00	23,300.00	40,320.00	-	delay milestone payment; compensation on basis of unjust enrichment
C18	N/Av	17,000.00	-	8,820.00	-	unpaid balance for work done
C19	N/Av	9,100.00	-	9,080.00	-	unpaid balance of work done
C20	N/Av	4,000.00	4,000.00	-	4,000.00	termination of contract; unpaid balance for work done

The contractual disputes for the remaining 158 COC project court cases and their monetary disputes are evaluated to overview monetary disputes. The causation identified in the COC project court cases can be a lesson learned and practical input for improving contract formation, administration, and management for MOC projects.

Table 7 Monetary Dispute of COC Court Cases

Disputes by Plaintiff (COC project Cases)	≤ 50.00 k	100.00 k ≥ x > 50.00 k	200.00 k ≥ x > 100.00 k	400.00 k ≥ x > 200.00 k	600.00 k ≥ x > 400.00 k	800.00 k ≥ x > 600.00 k	1.00 m ≥ x > 800 k	2.0 m ≥ x > 1.0 m	3.0 m ≥ x > 2.0 m	4.0 m ≥ x > 3.0 m	20.0 m ≥ x > 10.0 m	40.0 m ≥ x > 30.0 m	50.0 m ≥ x > 40.0 m	∑
Unpaid amount for work done	27	17	19	10	4	5	1	4		1	1		1	90
Termination issue		2	4	3	3	1		3		1	1			18
Unpaid amount for Extras	2	2	4		1				1	1		1		12
Damages from Negligent Performance	1	1	1			1	1	1		2	1			9
Delay in payment response + suspended work		2		3		1								6
Deny to pay progress payment	2			2		1								5
Hold-back Money	1		1		2			1						5
Insurance coverage		1								1	2			4
Cost for corrective work	1				2									3
Damages claim from Delay in completion				1				1						2
Dispute in Certified Payment			1				1							2
overrun in budget					1									1
Return alleged overpaid amount	1													1
∑	35	25	30	19	13	9	3	10	1	6	5	1	1	158

As shown in Table 7, most cases filed by the plaintiff are for the unpaid payment for the work done, accounting for 56% (i.e., 90 out of 158 cases). Followed by contract termination issue, and the unpaid amount for changes or extras are placed at the second and third ranks in terms of the number of cases and the dispute amounts. For instance, there are seven cases with large monetary disputes ranging from 10 million CAD to over 40 million CAD, which can be seen in the last three columns of Table 7. These biggest monetary dispute cases are filed at the court for the unpaid amount of work done (with 2 cases), contract termination issue, unpaid for extras and changes, and damages from negligence performance (with 1 case each), and insurance dispute (with 2 cases). According to monetary disputes, one hundred fifty-eight cases are divided into five different sections to gain insights into these disputes. Based on the table, five disputes that can cause million-dollar disputes are ‘payment disputes (i.e., progress payment and final payment issues)’, ‘contract termination issues’, ‘extras and changes entitlement dispute’, ‘damages from negligence performance’, and ‘insurance coverage dispute’.

4.2) Causes of Disputes from Selected Superior Court Cases

To identify the main causes of claims and counterclaims, the main dispute reasons in the superior court cases are analyzed and grouped based on the similarity to quantify the frequency of the dispute reasons. Furthermore, these causes are used to identify relevant classes in the proposed fishbone model to acquire valuable and beneficial inputs to improve contractual management and administration and develop preventive measures to minimize contractual disputes for the MOC in the future.

Table 8 Causes of Disputes from Selected Superior Court Cases with Frequency

Main Causes of Disputes	Frequency (MOC)	Frequency (COC)	Classes from Proposed Fishbone Model
Wording Issue	0	2	1.1.2 Contract Wording Issues
Dispute in Contract Terms; Ambiguous terms	4	32	2.2.2 Poorly Defined General Provisions
Defective Costs; Unpaid Extras/changes; Delay Calims; Backcharges; Claim for Overpaid	11	164	2.2.4 Unclear Terms for Changes in Work
Unpaid Progress Payments; Unpaid Final Payments; Reimbursement of	15	133	2.2.6 Unclear Payment Terms, Procedure, Certify
Insurance Coverage	1	17	2.2.7 Inadequate Bonds & Insurance to Cover Parties' Failure
Missing Information in Contract Document	0	10	2.3.2 Incomplete Contract Documents
Amended the standard conditions	0	3	2.4.3 Changes to Standard Contract Conditions & Add Non-Standard Conditions
Contract Modification Issues	0	4	2.4.4 Unreasonable Clauses in Contract Conditions
Conflict / Contradict Terms	0	4	2.4.7 Redundant Information
Design Defect	0	1	3.1.1 Design Error
Vague and Incomplete Design Drawings	0	1	3.1.3 Incomplete Design (Poor drawing, detailing and layouts)
Improper Inspection; Knowledge in Applicable law	0	6	4.1.2 Inadequate knowledge in governing regulations
Poor Contract Management & Aministration	4	16	4.1.3 Ineffective contract management & administration
Unlawful Termination of Contract Work	4	25	4.1.4 Unlawful and improper termination of the contract
Unlawful Stopped work/ Suspension of work	0	11	4.1.5 Unlawful and improper stop work
Lack of Common-sense/Mutual Understanding	0	3	4.2.1 Lack of Mutual Understanding of Contract Terms
Misinterpretation of Contract Terms	0	4	4.2.2 Misrepresentation of Contract Documents
Unrealistic Expectations	0	1	4.2.3 Unrealistic & Illogical Expectations
Negligent Performance	3	24	4.2.5 Performance Risks
Breach of rules of the art	0	2	4.3.1 Inadequate design team experience
Delay in Delivery	1	0	5.2.1 Need to Develop Effective Supply Chain Management
Total Frequency	43	463	

As shown in Table 8, eight different classes are identified associated with the major causes of disputes in the MOC cases. Twenty-one classes from the proposed fishbone model are associated with major causes of disputes in the COC court cases. The main dispute causes in both MOC and COC are ‘unclear terms in payment’ and ‘unclear terms for changes in work’ since they have the top-two highest frequencies. However, the highest frequency in the MOC is identified in ‘unclear terms in payment’, but ‘the unclear terms for changes in work’ has the highest frequency number in the COC. In addition, contract administrator issues (i.e., poor contract management and administration) and unlawful termination of the contract are found as another major cause of disputes in the MOC cases since these causes have the same frequency number. As a result, there is a similar trend in terms of the main dispute causes in both MOC and COC, even though these methods have different construction processes and lifecycle to complete projects successfully. At this junction, of course, it is too early to generalize that the MOC has the same dispute causes as ones in the COC since there are not sufficient court cases in the MOC yet. However, based on the result of this quantitative analysis, the MOC can develop preventive measures and/or methods for better contractual management and administration by benchmarking the efforts and experiences done by the COC.

Based on the result of frequency analysis in terms of dispute causes in the court cases (Table 8), the weighted percentages of sub-categories are computed by a number of frequencies at each sub-category divided by a total frequency of the sub-categories. As a result, Figure 13 represents the recapitulation of superior court cases in the proposed fishbone diagram. This recapitulated information is compared with the weights of sub-categories in the quantified literature-based fishbone diagram (Figure 8) to identify the similarity and difference of dispute causes and the importance level of each subcategory between literature and Canadian court cases. This comparison is essential to identify the sources of construction disputes and learn the lessons from literature to improve contractual management and administration in the Canadian construction industry, especially MOC. In this respect, 'ambiguity in contract terms' and 'poor contract draftsmanship' are the top two critical sources of dispute/litigation claims in both literature and court cases. In the literature, the ‘modification issues’ in the contract category is the third dispute cause in both COC and MOC, but in Canada, the MOC does not have any claims. Instead, ‘lack of common-sense among contract entities’ is the third most dispute cause in Canadian construction court cases. Although the MOC literature often emphasizes the needs of local regulation and practice change, insufficient industrial readiness, and transportation and lifting limitations, it is contrary to a result of superior court case analysis that the ‘transportation and lifting limitation’ should be addressed.

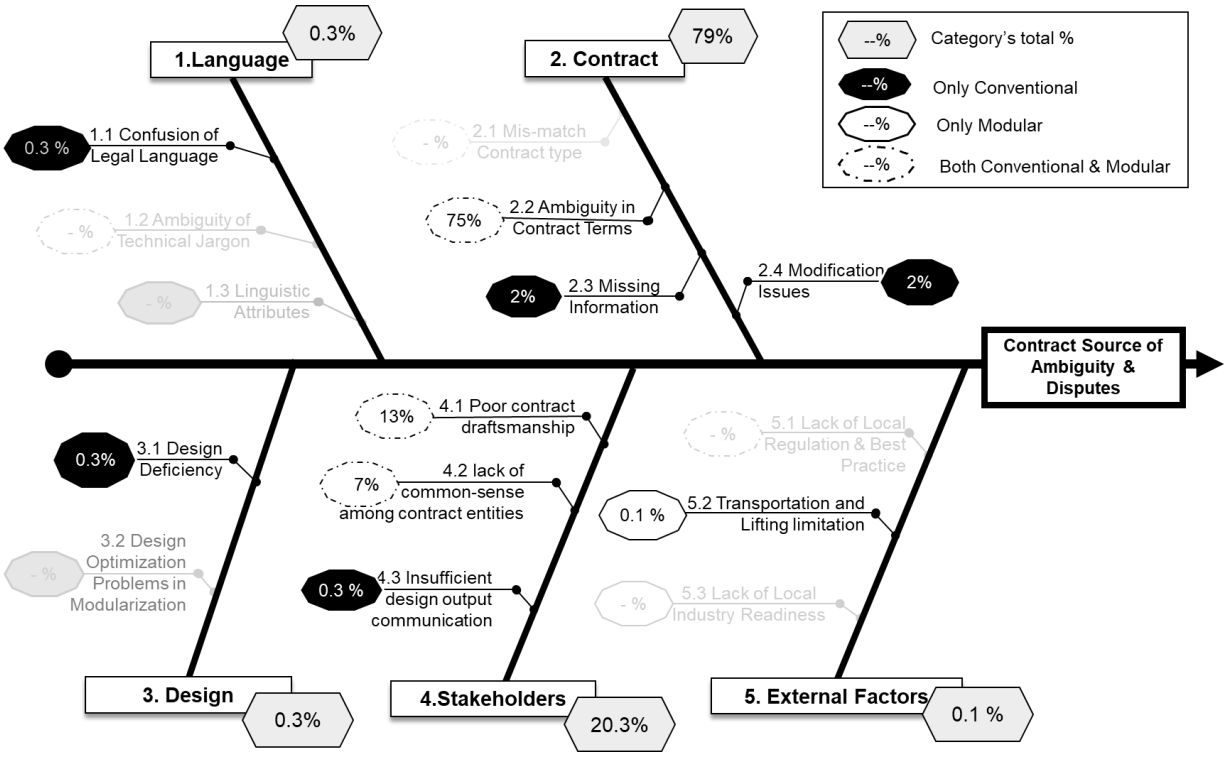


Figure 13 Recapitulation of superior court cases in the proposed fishbone diagram

4.3) Analysis of Selected Cases from the Supreme Court of Canada (SCC)

A total of 13 cases at the Supreme Court level satisfied our selection criteria. The information of these cases, including the type of appellant and respondent entities, and the reason for filing/ motion of proceedings, can be seen in Table 9. Nine out of thirteen cases are submitted for 'leave for appeal', two cases for 'to present new evidence', one case for 'to request for authorization of judgment', and the last one with 'summary dismissal of the appeal'. These selected SCC cases are analyzed through our proposed framework, and this section describes the results. The cases included eleven new construction projects (such as buildings, an ambulance center, and an art center), one heavy industry construction project, and one repair and renovation work.

Table 9 Selected Supreme Court Cases Information

Case #	Plaintiff	Defendant	Subject of work	Province of work	Start & Finish Date at SCC	Plaintiff's Motive of Claim	Defendant's Reasons for Counterclaim
1	Owner	Builder	Building work	Quebec	14/11/2014 ~ 09/02/2015	Faulty performance and rectification of defective works	Withheld payment and abrupt suspension of work during the contract
2	Owner	Builder	Building work	Ontario	22/05/2009 ~ 27/11/2009	Covering costs to rectify significant defective works	Payment dispute and disagreement on the scope of [omitted] works
3	Client	GC*	Sewer line micro tunneling	Ontario	27/08/2007 ~ 07/12/2007	Dispute the work period and determination of the time; penalties for non-completion of work.	Dispute on the construction schedule and ambiguous specification amendments by Plaintiff
4	GC*	Client	Multipurpose center	Quebec	11/03/2019 ~ 16/04/2019	The unpaid amount for an additional item (backfilling work) which is needed to complete the additional enlargement work	*Not listed in the cases summary*
5	GC*	Client	Building work	Quebec	27/07/2009 ~ 07/03/2011	For unpaid amount on an agreed price	For rectification cost for construction defect
6	Sub♣	GC*	Restoration work	Quebec	28/06/2013 ~ 22/10/2013	Cost for additional work and compensation for loss of profit and taxes due to termination of the contract	For the cost of damage for additional costs incurred to complete the work, hardships, and loss of anticipated profit
7	Sub♣	Builder	Supply of concrete formwork	Ontario	10/08/2006 ~ 01/02/2007	Appeal for summary judgment "responsible for breach of contract obligation, tort claims, and damages."	For defects in concrete sold to build houses, the claims against the plaintiff were in contract and tort.
8	Sub♣	GC*	Oilsands project	Alberta	28/10/2016 ~ 20/02/2018	For unpaid invoices for subcontract work, claim against the respondent for failure to notify about labor and materials payment bond existence as an Obligee	Applied for summary dismissal
9	Sub♣	GC*	Building work	Alberta	01/02/2011 ~ 30/11/2011	Payment dispute on the unpaid amount set off and held for defect rectification	For rectification cost for construction defect (set off amount)
10	GC*	Sub♣	Brampton Performing Art Centre	Ontario	18/02/2011 ~ 19/07/2011	Claimed damages for breach of contract due to delays in the project for which it says it is entitled to be compensated	Abuse of process and failure to disclose the agreement when it was completed.
11	CM† & Owner	Insurer	Cleaning the exterior of the building	Alberta	26/05/2015 ~ 19/09/2016	Claiming insurance coverage and dispute on the cost of replacement for damaged windows under the insurance policies	Denied Plaintiff's claim by referring to the excluding clause
12	Insurer	Owner/ Builder	Rectification Work	Quebec	15/08/2014 ~ 03/07/2015	To dismiss the warranty claims with 'the commercial general liability policy	Warranty claim for insurance coverage for the costs associated with the defective work and the general damage resulting from water leakage
13	GC*	Client	erecting the structures of a building	Quebec	30/06/2016 ~ 31/01/2019	Unlawful and improper termination of the contract; Claiming balance amount under the contract, loss of profit on the portion of unperformed work, and damages	For serious breaches, including improperly letting the ground freeze; producing defective schedules, and not planning for any shoring method

We first analyze the typology of the plaintiff and defendant to find out which party is more likely to initiate litigation filing. General statistics of the collected court cases are presented in Figure 14 and Figure 15.

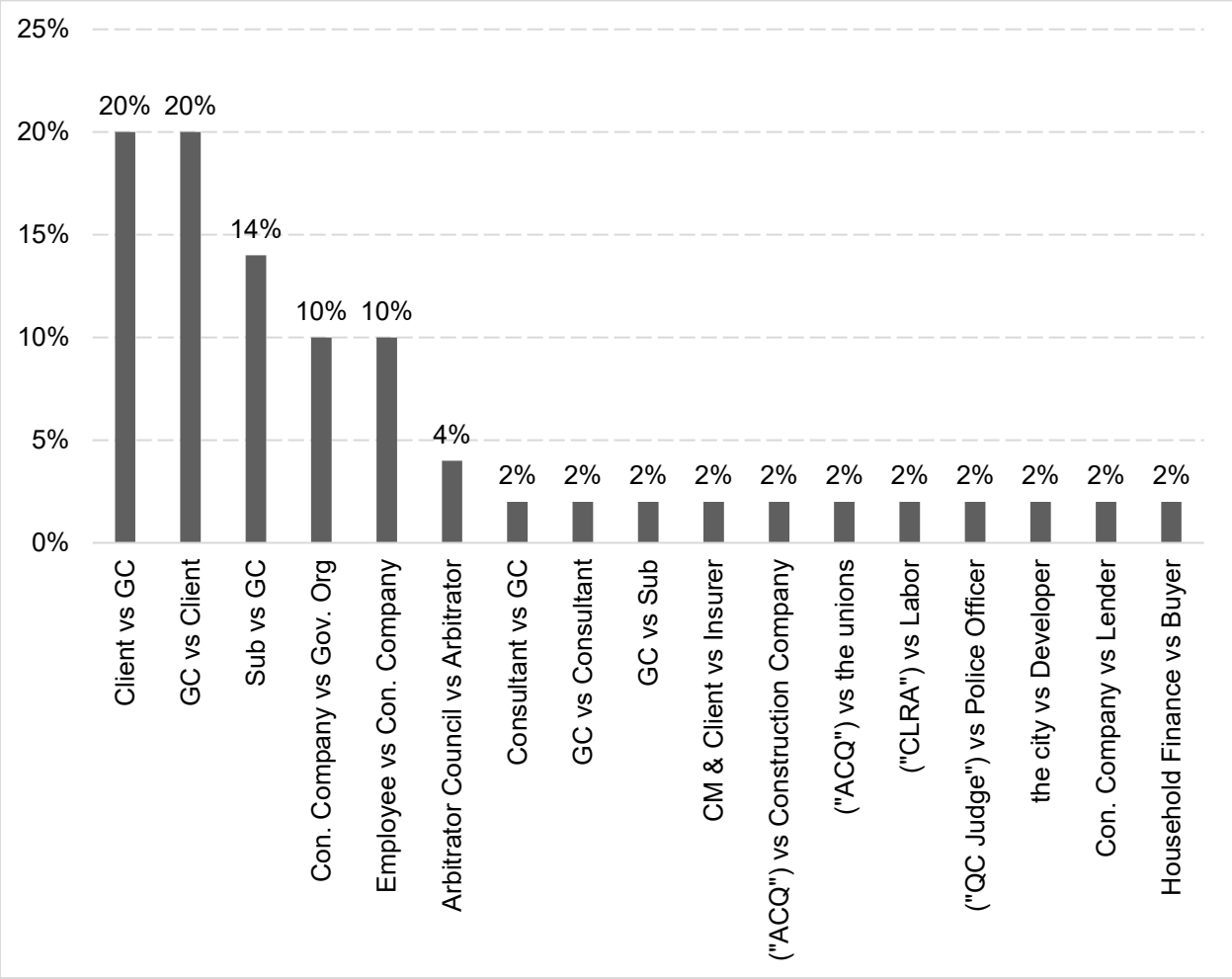


Figure 14 Distribution of Plaintiff Vs. Defendant entity type (for the 50 cases)
(ACQ: Association du la Construction du Quebéc; CLRA: Canadian Land Reclamation Association; CCQ: Commission de la construction du Quebéc)

The contracting parties mostly involved in the claims include clients/developers; architects/consultants/design team; surety/insurance companies; general contractors/builders, contractors/subcontractors and/or sub-subcontractors and suppliers. The distribution of cases between different types of parties as plaintiffs and defendants, based on the pool of 50 cases is shown in Figure 14. The general contractor and client (as applicant and respondent or vice versa) form the top two highest frequency among the pool of cases (40% of total cases, 20% each way). The same is true for the sample of 13 court cases. Most disputes occur between the contractor (i.e., general contractor/builder) and the client (i.e., owner/developer), who are traditionally the main parties signing a construction contract (i.e., prime contract). Sub-contractor – contractor forms the third-highest ranked pair. The term sub-contractor is often incorporated

with the terms and requirements of the project's prime contract. Therefore, having a clear and well-structured construction contract is an important factor in minimizing any potential contractual disputes in the later construction stage.

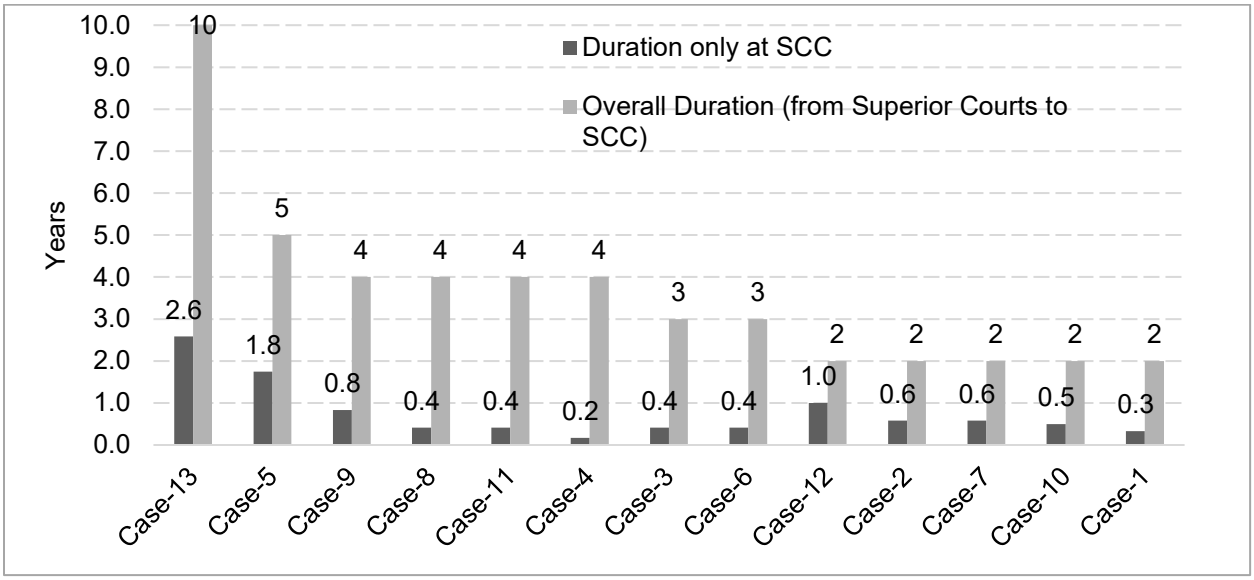


Figure 15 Litigation duration for the analyzed cases

On the other hand, litigation has been known as a lengthy process among various dispute resolution mechanisms. Figure 15 presents the overall litigation duration of the selected cases. The most prolonged duration among selected cases is ten years from the documented date at the Superior Court, including the process at the Court of Appeal, until that date at the SCC. In that particular case (case 13), the process duration only at the SCC took about two and a half years. Setting case 13 aside as an anomaly, the other cases took within the range of two to four years and the average duration at the SCC. Case 5 is the second-longest in overall duration with five years and almost two years duration at SCC. The trial parties of these two cases with longer duration are the general contractor as plaintiff and the client as a defendant with a fixed price contract.

4.4) Causes of Disputes from Selected Supreme Court of Canada (SCC) Cases

In the next step, motives of the proceeding and incorporated reasons for counterclaims from the individual case were analyzed and extracted from case information. In total, seventy-one (71) motives are identified in the selected thirteen cases. These motives of proceeding are classified under the relevant classes of our proposed analysis framework (developed in phase 1 of the study). This was done by cross-examining the major reasons for filing the SCC's proceeding, with the relevant classes from the proposed fishbone model. Table 10 presents twenty-seven (27) classified classes, with frequency count, frequency percentage, and ranks them in a descending order based on the frequency.

Table 10 Causes of Disputes from Selected SCC Court Cases with Frequency

Main Disputes	Classes (Causes of Disputes)	Frequency Count	Frequency %	Rank
● Illegal/ abusive/ untimely termination of the contract ● Unpaid Extras/changes; ● claim for the contractual balance ● loss of profit on the undone part of work ● withhold payment ● Defective Costs; ● Poor Workmanship; Negligent Performance ● poor quality of the construction; ● ethical obligation by engineer for verbal consent ● Insurance Coverage	4.1.3 Ineffective contract management & administration	10	14%	1
	2.3.2 Incomplete Contract Documents	7	10%	2
	2.4.7 Redundant Information	6	8%	3
	4.2.5 Performance Risks	5	7%	4
	2.2.4 Unclear Terms for Changes in Work	4	6%	5
	2.2.6 Unclear Payment Terms, Procedure, Certify	4	6%	
	4.1.4 Unlawful and improper termination of the contract	4	6%	
	2.2.5 Excessive Contractual Variations	3	4%	6
	2.2.7 Inadequate Bonds & Insurance to Cover Parties' Failure	3	4%	
	4.2.2 Misrepresentation of Contract Documents	3	4%	
	2.2.2 Poorly Defined General Provisions	2	3%	7
	2.3.1 Inadequate and Incomplete Specifications	2	3%	
	4.1.2 Inadequate knowledge in governing regulations	2	3%	
	4.2.1 Lack of Mutual Understanding of Contract Terms	2	3%	
	4.2.4 Dispute Resolution Complexity & Personality Conflict	2	3%	
	1.2.2 Problem of Terminology	1	1%	8
	1.3.2 No Explicit Language/Vague Language	1	1%	
	2.2.3 Unclear Scope Definition and Contract Requirement	1	1%	
	2.3.3 Lack of Quality Management	1	1%	
	3.1.1 Design Error	1	1%	
	3.1.3 Incomplete Design (Poor drawing, detailing, and layouts)	1	1%	
	4.1.1 Inadequate experience and knowledge by contract drafter	1	1%	
	4.1.5 Unlawful and improper stop work	1	1%	
	4.2.3 Unrealistic & Illogical Expectations	1	1%	
	4.3.2 Delay in Preparation & Approval of shop drawings	1	1%	
	4.3.4 Coordination Intensity (Design-Manufacturing-construction)	1	1%	
	Total	71	100%	

The most frequent motive of the proceeding is ‘ineffective contract management and administration’, which comprises poor management and administration of contracted entities, poor communication in terms of contractual agreements, and failure to enforce compliance of contract provisions and responsibilities. We identified that ‘*lack of criteria for damages or defects’, ‘lack of quality management’, ‘insufficient information to estimate’, and ‘incomplete*

contract documents at the time of awarding' are the most cited reasons among the analyzed cases. These make '*incomplete contract documents'* the second-most frequent cause of disputes. The third highest rank class is *'redundant information'* in construction contracts, with three out of its four subclasses found among the causes of disputes for the analyzed cases. Accordingly, our results show that including more or less than required information in the contract document (i.e., *'incomplete contract documents'* and *'redundant information')* will be the core reason for conflict between contracted parties. Other causes of disputes are concerning the ambiguity in contract terms. Each of the two classes '*unclear terms for changes in work*' and '*unclear terms for payment, procedure, certify*ing the work' constituted 6% of the motives of the analyzed cases and were ranked at the fifth-highest place. At the same level, there was the '*unlawful and improper termination of the contract*' class, where applicants often add up damage claims for different reasons, such as loss of reputation, business loss, profit loss, additional incurred cost, and the cost to complete outstanding works.

Lastly, the level of significance for each subcategory is evaluated based on the aggregation of the frequency of count on their classes, derived from the classified motion of proceedings. The result is overlaid on the proposed fishbone model in Figure 16. This figure helps to compare and contrast the top-down classification of sources of ambiguity in contracts (based on the literature) against the bottom-up results (observed in litigation and court cases). The case-based weighted percentage of each subcategory is calculated based on the seventy-one causes of disputes identified in the selected cases. The frequency count at each class is divided by the total frequency count (i.e., seventy-one) to get the weighted percentage of each class. These weighted percentages are summed to have a total weight at the subcategory level. The subcategories that have been absent in the list of major motives of proceeding of the court cases are shown on the figure in light gray. The quantitative analysis of cases at SCC shows that the 'Contract' and 'stakeholders' categories are the most prominent aspects of experiencing failure in a construction contract.

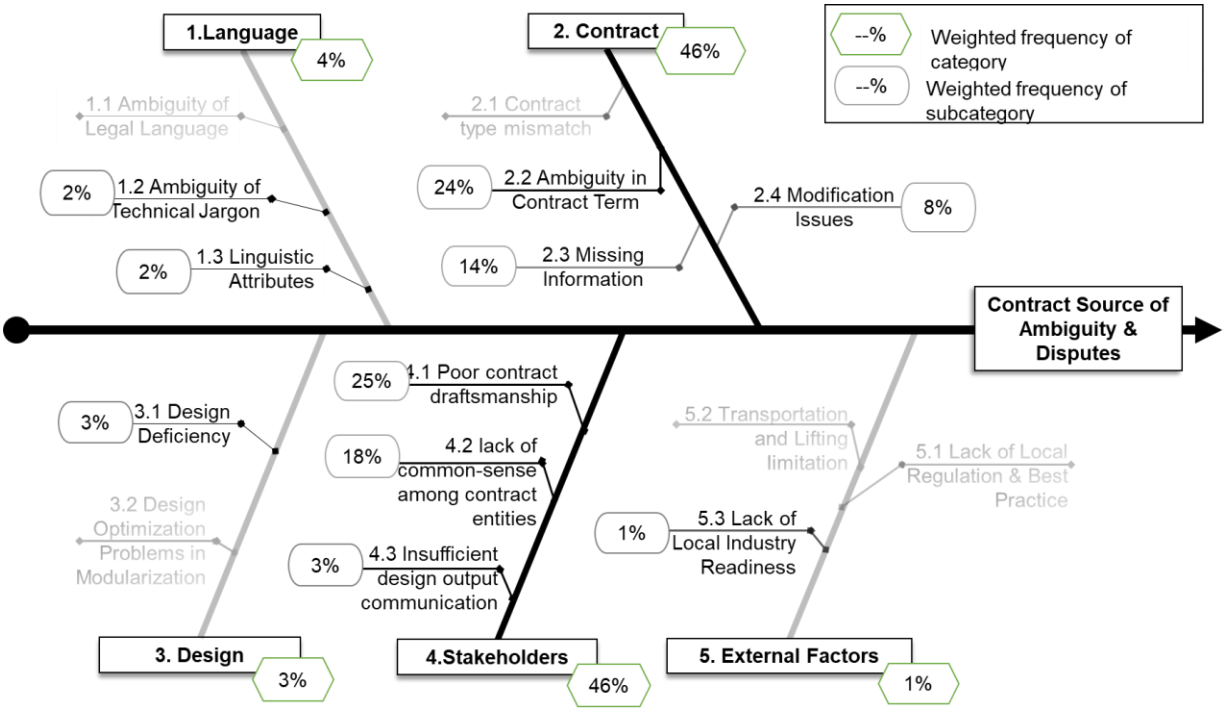


Figure 16 Recapitulation of SCC court cases in the proposed fishbone diagram

Table 11 Common Causes of Disputes from Selected Court Cases

		Support (weight) % of		
	Classes (Causes of Disputes)	Superior (MOC)	Superior (COC)	SCC (COC)
1.1.2	Contract Wording Issues		0.4%	
1.2.2	Problem of Terminology			1%
1.3.2	No Explicit Language/Vague Language			1%
2.2.2	Poorly Defined General Provisions	21%	7%	3%
2.2.3	Unclear Scope Definition and Contract Requirement			1%
2.2.4	Unclear Terms for Changes in Work	4%	35%	6%
2.2.5	Excessive Contractual Variations			4%
2.2.6	Unclear Payment Terms, Procedure, Certify	13%	29%	6%
2.2.7	Inadequate Bonds & Insurance to Cover Parties' Failure	4%	4%	4%
2.3.1	Inadequate and Incomplete Specifications			3%
2.3.2	Incomplete Contract Documents		2%	10%
2.3.3	Lack of Quality Management	6%		1%
2.4.3	Changes to Standard Contract Conditions & Add Non-Standard Conditions		1%	
2.4.4	Unreasonable Clauses in Contract Conditions		1%	
2.4.7	Redundant Information		1%	8%
3.1.1	Design Error	1%	0.2%	1%
3.1.3	Incomplete Design (Poor drawing, detailing, and layouts)		0.2%	1%
4.1.1	Inadequate experience and knowledge by contract drafter			1%

4.1.2	Inadequate knowledge in governing regulations		1%	3%
4.1.3	Ineffective contract management & administration	13%	3%	14%
4.1.4	Unlawful and improper termination of the contract	9%	5%	6%
4.1.5	Unlawful and improper stop work		2%	1%
4.2.1	Lack of Mutual Understanding of Contract Terms		1%	3%
4.2.2	Misrepresentation of Contract Documents		1%	4%
4.2.3	Unrealistic & Illogical Expectations	19%	0.2%	1%
4.2.4	Dispute Resolution Complexity & Personality Conflict			3%
4.2.5	Performance Risks	9%	5%	7%
4.3.1	Inadequate design team experience		0.4%	
4.3.2	Delay in Preparation & Approval of shop drawings			1%
4.3.4	Coordination Intensity (Design-Manufacturing-construction)			1%
5.2.1	Need to Develop Effective Supply Chain Management	1%		

Table 11 illustrates the combined list of the causes of disputes from the contractual dispute court cases filed at the provincial Superior Courts and Supreme Court of Canada (i.e., final appeal court). The thirty-one causes are identified from the court cases during the past twenty years in the Canadian construction industry. The support percentage of each class and its occurrence in each column (i.e., Superior Court (MOC), Superior Court (COC), and SCC (COC)) represents its severity regarding the construction method.

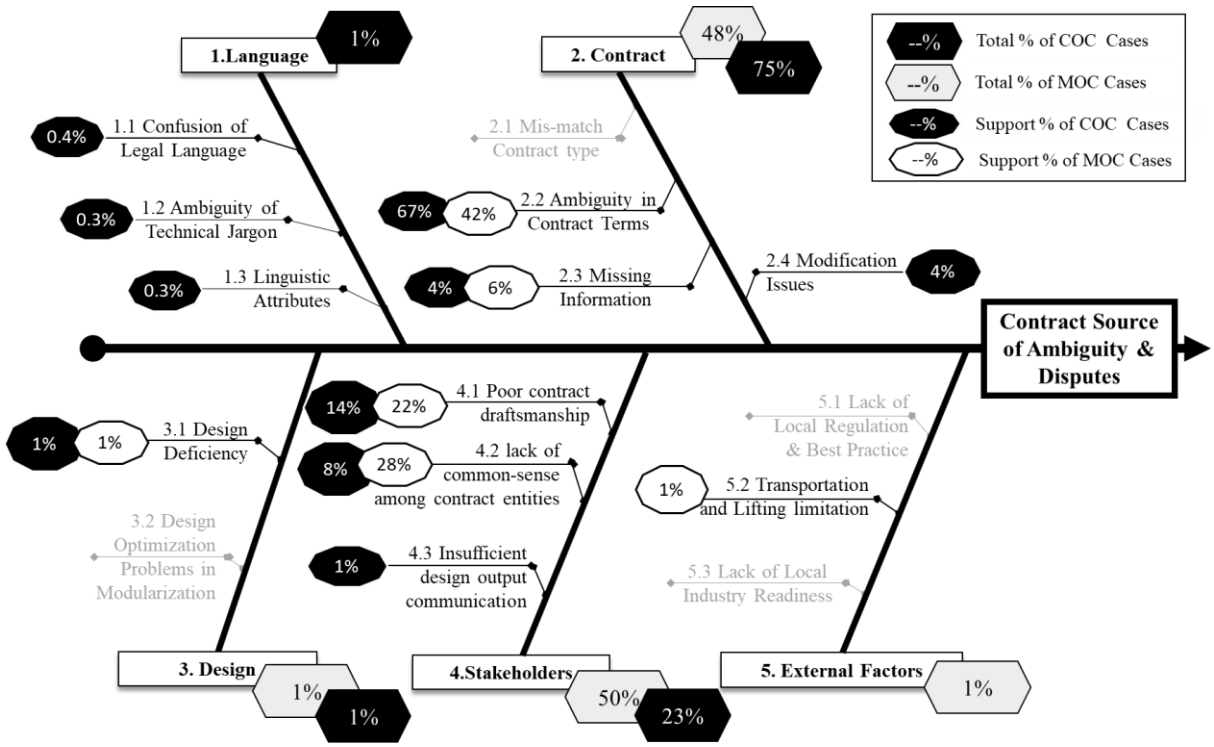


Figure 17 Recapitulation of Common Causes of Disputes in the Fishbone Diagram

The support (weight) percent describe that ‘contract’ and ‘stakeholders’ categories are the major causes of disputes for MOC project cases. In COC, the ‘contract’ formation issue is a

considerably more serious issue than ‘stakeholders’. The remaining three categories have lesser support (weight), with about 1% to 2%. These causes of disputes from the case analysis against literature identify the similarity and difference between the generalized causes of disputes from literature against the Canadian industry court case study.

4.5) Comparison between the Case-based and Literature Analyses

A comparison between the case-based (bottom-up) and literature (top-down) analyses helps to find out their commonality and differences based on the method of construction (i.e., COC and MOC). Focus on the top-most three ranks; Figure 19 shows a similar trend (i.e., rank) in the level of importance of subcategories between COC literature-based and case-based ranking. However, different ranking is found in the comparison between MOCs (see Figure 20). MOC literature highlighted an extra focus on the external factor-related ambiguities such as ‘Lack of local industry readiness’ is the topmost subcategory. In contrast, the case analysis result of MOC showed ‘Ambiguity in contract terms’ is more concern for the Canadian construction industry. This comparison provides the need to improve the clarity of contract terms and improve contract management and administration.

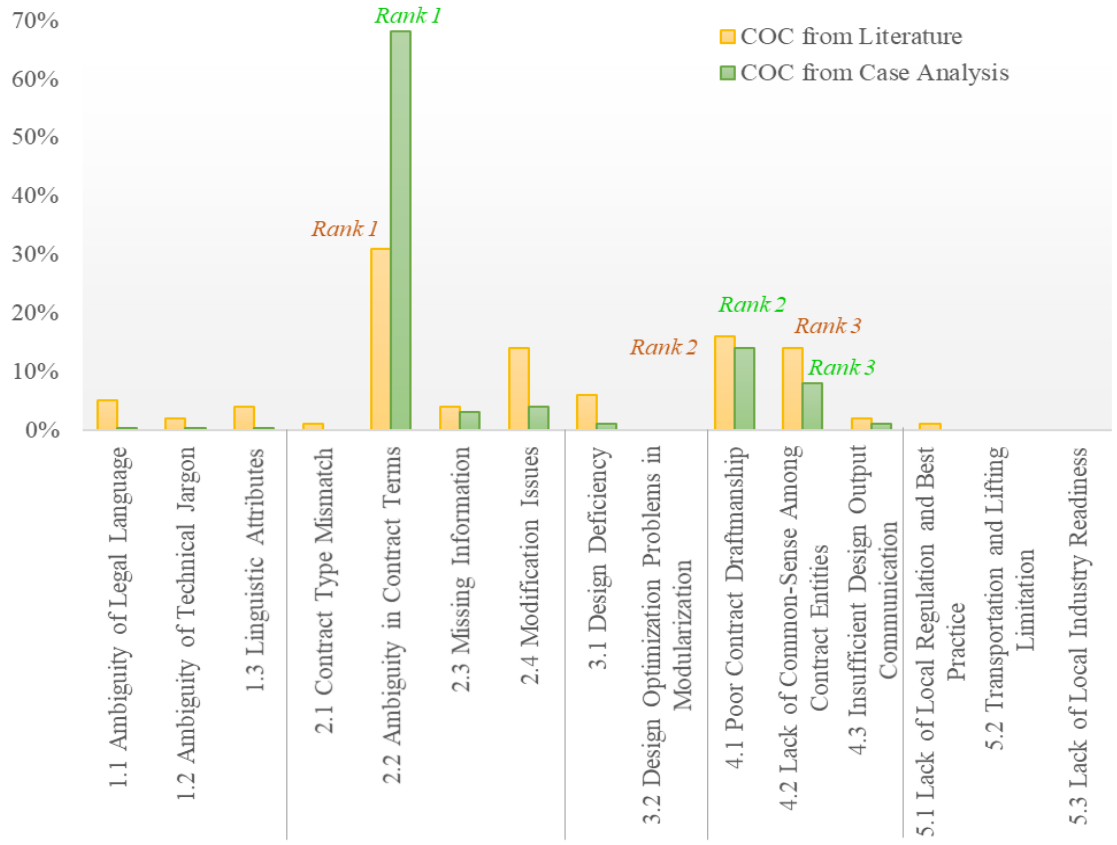


Figure 18 Comparison of COC’s Literature and Court Cases Analyses

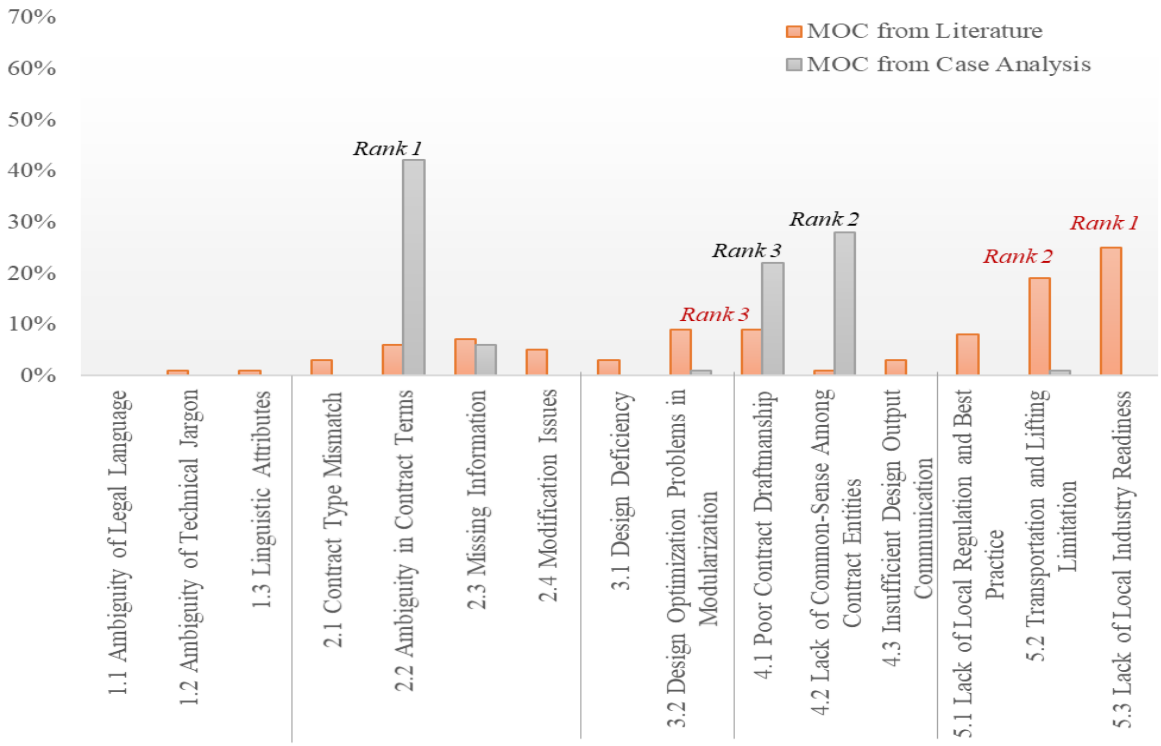


Figure 19 Comparison of MOC's Literature and Court Cases Analyses

4.6) Identification of Relevancy in Standard Contracts

Reference to the analysis of project data and background information using the court cases, both MOC and COC have mainly used stipulated, and unit price contracts, but only 22% of cases have adopted the standard contract documents to formalize business relations. At this junction, it should be noted that the Canadian Construction Documents Committee (CCDC) provides two types of stipulated standard contracts which are CCDC 2 stipulated price contract, which is commonly used in the Canadian construction industry [20] and CCDC 14 design-built stipulated price contract which may be the most suitable for MOC projects since the MOC mainly uses the design-build delivery system in practice [11, 18]. These contracts have a total of twelve general conditions that support developing construction contract documents depending on project requirements. Therefore, trial parties (i.e., clients and general contractors) often review CCDC 2 and CCDC 14 standard documents carefully to enhance their justification when the claims and/or disputes arise.

In this respect, this study evaluates the interrelation between the dispute causes of MOC and COC in the court cases and general conditions in CCDC 2 and CCDC 14 in order to obtain the following benefits: *(i)* identifying the relevant general provisions in the Canadian standard contracts that can address the major causes of dispute extracted from MOC court case analysis; and *(ii)* providing the preview to the formation of the standard contract documents tailored for the MOC projects. As a result, Table 13 represents general conditions in the Canadian standard contracts and preventive measures/methods in accordance with major dispute causes of

Canadian court cases. For example, the most frequent dispute in the MOC court cases is ‘unpaid payments’ covering both progress and final payment issues. The progress payment disputes are made due to different payment amounts between parties, late payment, and the quantity take-off methods. In contrast, the final payment disputes occur since the contract's final payment and balance are rejected and unpaid. In order to address these disputes, the ‘5.2 Applications for Progress Payment’ and ‘5.3 Progress Payment’ in both CCDC 2 and CCDC 14 describe the progress payment timeline for project participants in accordance with the dates of submission for the payment claims. Similarly, the remaining conditions from 5.4 to 5.9 in CCDC 2 and CCDC 14 can be used to resolve the final payment disputes. To prevent these payment issues, previous studies have proposed two measures, which are the payment-related legislation and the attitude change of upstream construction parties (e.g., clients and consultants) that they must maintain the payment timeline described in the contracts [8].

In view of disputes in contract terms, ambiguous contract terms are a common issue in the construction industry even though the standard contracts are adopted in the construction projects since the project contracts are often modified by the company in order to satisfy the project requirements in practice. Unfortunately, this common issue cannot be addressed by any general condition in the standard contracts. However, as preventive methods to address ambiguous contract terms, previous research has proposed using simple languages to improve the clarity and completeness in contract documents based on the clear identification of the owner’s needs and requirements [88]. At this junction, it should be noted that there is one court case in terms of insurance, which can be addressed by ‘11.1 Insurance’ and ‘11.2 Contract Security’ in both CCDC 2 and CCDC 14. However, preventive measures and/or methods for insurance-related issues have not been attention even though the previous studies have identified as one of the ambiguous sources representing class 2.2.7 in the proposed fishbone model (See Table. 13). Therefore, it is recommended to have additional insurance coverage for the modules or components while storing off-site and transporting them to the place of work to cover the potential loss.

Table 12 General Conditions of Standard Contracts and Preventive Measures/Methods associated with Major Causes of Disputes in MOC Court Cases

Main Disputes	CCDC 2	CCDC 14	Previously Publicized Preventive Measures and/or Methods
Unpaid Payments (15)	5.2 Applications for Progress Payment; 5.3 Progress Payment; 5.4 Substantial Performance of the Work; 5.5 Payment of Holdback upon Substantial Performance of the Work; 5.7 Final Payment; 5.8 Withholding of Payment; 5.9 Non-conforming Work; 2.4 Defective Work;	5.2 Applications for Progress Payment; 5.3 Progress Payment; 5.4 Substantial Performance of the Work; 5.5 Payment of Holdback upon Substantial Performance of the Work; 5.6 Progressive Release of Holdback; 5.7 Final Payment; 5.8 Deferred Work; 5.9 Non-conforming Design Services and Work;	- Attitude change of upstream construction parties to follow up the payment timeline in contracts - Act on Payment-related legislation [8]
Defective Costs; Extras/changes entitlement; Delay Claim; (12)	2.3 Review and Inspection of the Work; 2.4 Defective Work; 3.4 Document Review; 6.2 Change Order; 6.3 Change Directive; 6.5 Delays; 6.6 Claims for a Change in Contract Price 3.5 Construction Schedule; 4.2 Contingency Allowance; 10.2 Laws, Notices, Permits, and Fees; 12.3 Warranty	3.11 Non-Conforming Design and Defective Work; 6.1 Owner's Right to Make Changes; 6.2 Change Order; 6.3 Change Directive; 6.4 Concealed or Unknown Conditions; 6.5 Delays; 6.6 Claims for a Change in Contract Price 3.6 Design Services and Work Schedule; 12.5 Warranty	- Clarity of variation order procedures, written approvals, variation order scope, variation logic, and justification [49] - Enforcing the liquidated damage clauses and offering incentives for early completion [47] - Include comprehensive scheduling provision [89] - To carefully ensure the differing codes, permitting, lead cars, and various associated fees [11]
Dispute in Contract Terms (4)	No general condition	No general condition	-Increase clarity and completeness in contract documents and use simple language [88]. - Manifest owner's needs and requirements; [49]
Poor Contract Management & Administration (4)	2.1 Authority of the consultant; 2.2 Role of the Consultant; 2.3 Review and Inspection of the Work; 3.6 Supervision; 3.7 Subcontractors and Suppliers; 3.8 Labor and Products	2.1 Owner's Information; 2.2 Role of the Owner; 2.5 Owner's Review of the Design and the Work; 3.1 Control of the Design Services and the Work; 3.2 Design-Builder's Review of Owner's Information; 3.3 Role of the Consultant; 3.4 Other Consultants, Subcontractors, and Suppliers; 3.5 Construction Documents; 3.6 Design Services and Work Schedule; 3.7 Supervision; 3.8 Labor and Products; 3.11 Non-Conforming Design and Defective Work	- Address an acceptable performance standard; suggest developing project-specific risk mitigation plans to address the organizational behavior problems [90]
Unlawful Termination of Contract Work (4)	2.4 Defective Work; 6.5 Delays; 7.1 Owner's Right to Perform the Work, Terminate the Contractor's Right to Continue with the Work or Terminate the Contract; 7.2 Contractor's Right to Suspend the Work or Terminate the Contract;	7.1 Owner's Right to Suspend the Design Services or Terminate the Contract Before the Work Commences; 7.2 Owner's Right to Perform the Design Services or Work, Terminate the Design-Builder's Right to Continue with the Design Services or Work, or Terminate the Contract; 7.3 Design-Builder's Right to Suspend the Design Services or Work, or Terminate the Contract;	- To carefully read and follow the procedure of termination in the construction contract [91]
Negligent Performance (3)	2.2 Role of the Consultant; 2.3 Review and Inspection of the Work; 3.6 Supervision; 3.1 Control of the Work; 3.7 Subcontractors and Suppliers; 3.8 Labor and Products; 12.3 Warranty;	3.1 Control of Design Services and the Work; 3.6 Design Services and Work Schedule; 3.7 Supervision; GC 3.8 Labor and Products; 3.11 Nonconforming Design and Defective Work	- Early consideration and allocation of project risks; Early negotiation; Realistic assessment of the value and impact of the claim [28]
Insurance (1)	11.1 Insurance; 11.2 Contract Security; CCDC 41- CCDC Insurance Requirements	11.1 Insurance; 11.2 Contract Security. CCDC 41- CCDC Insurance Requirements	

Although the standard contract documents (CCDC 2 and CCDC 14) can prevent and/or eliminate major causes of MOC court cases such as payment, delay claims, defect works, and poor administration and management, some payment-related general conditions in these standard contract forms need to be modified for the MOC since the payment issues are the primary concern in MOC projects in accordance with the number of Canadian court cases in MOC projects. For example, the general condition 5.2.3 in CCDC 14 described below only allows the design-builder (i.e., general contractor/modular company) to claim the project costs when the contracted works are performed, and products are delivered at the *place of the works* (final destination/construction site).

> *"5.2.3 The amount claimed shall be for the value, proportionate to the amount of the Contract, of the Design Services and of the Work performed and Products delivered to the Place of the Work as of the last day of the payment period."*

This payment definition is suitable for COC, in which the completed works are measured and certified based on the on-site completion inspection, but not an applicable way for MOC since it completes most of the construction works up to 85 – 90% in the manufacturing environment and remaining works (e.g., transportation and installation) are done on-site [92]. At this junction, it is worth to be noted that CCDC 14 is mainly adopted in MOC projects in practice since they mainly prefer a design-build delivery system. However, one more feasible study is required to investigate 'Products' to establish a progress payment timeline for MOC projects. According to the general condition 5.2.8, the design-builder can claim proportionately to the amount of the products delivered to on-site.

> *"5.2.8 Applications for payment for Products delivered to the Place of the Work but not yet incorporated into the Work shall be supported by such evidence as the Payment Certifier may reasonably require to establish the value and delivery of the Products."*

In other words, the modular construction company can claim the project costs once the modules are fabricated before transporting them to the site before incorporating them into the place of work. However, the definition of 'Products' might not be interpreted as modules among the contractual parties since the standard contracts express it as material, machinery, equipment, and fixtures incorporated into the work. This situation and unfavorable terms which do not allow to claim for uninstalled create a financial burden for modular contractors/ Design-Builder. Therefore, it is suggested following addition to the definition of the word 'Modules' and 'Components'

> *'Modules' means pre-engineered, factory-fabricated structures with MEP, fixtures and interior finishes, volumetric modules, bathroom pods.*
>
> *'Components' means prefabricated components, precast panels, precast staircases, precast structural members, precast wall panels.'*

Moreover, prior discussion and agreement between the modular contractors/ Design-Builder and the client are needed upon the progressive claimable parentage by considering the detailed schedule (i.e., four major phases: design, module/component production & off-site inspection,

transportation, installation/assembly & on-site inspection) and address well in the contract. It is suggested following addition in progress payment terms to allow for manufactured modules as follow:-

> *"Applications for payment for Modules/Components manufactured at the factory (off-site) and yet to deliver to the Place of the Work shall be supported by such evidence (i.e., approved off-site inspection form) as the Payment Certifier may reasonably require to establish the value according to the agreed percentage."*

A proper payment mechanism (i.e., what payments become due and when) for the MOC project contract is needed. The said mechanism should well-structured in accordance with a detailed schedule (i.e., four major phases) and the nature of MOC (i.e., 85–90% of construction work is done off-site, and the remaining 10–15%, including the foundation and installation work, is done on-site [92]).

On the other hand, different territories can have different transport regulations, restrictions, and building codes. It is vital for both the modular contractor and the client to clearly understand these concerns' requirements and responsibilities. To avoid misunderstanding in the later stage, it should set out as follow:

> *"The modular contractors/Design-Builder is fully responsible for approval by any authority having jurisdiction for modules transportation.*
>
> *The module contractor/ design-builder is fully responsible for producing the modules/components following the international building code and the local code of the place of the work."*

As a result, the standard forms need to be modified for MOC projects based on MOC's nature and project requirements since there is no standard contract for the MOC yet. In this respect, the MOC insiders generally use non-standard written contracts or modified standard contracts (e.g., design-build) readily available in the industry. However, as shown in the example above, there might be a conflict and a high possibility of generating ambiguous sources leading to misinterpreting and disputes between the design-builder and the client when modifying the contracts and are not managed well based on the nature of the MOC. In this respect, the results of Table 13 provide an insight view or a reference to improve contract management and administration since it is crucial to learn prior knowledge about the potential causes of disputes in MOC projects in order to prevent and/or mitigate the repetitive occurrence in future projects. For example, the MOC should have attention in general conditions 2.3 and 2.4 in CCDC 2, and general conditions 2.1, 2.2, 2.5, and 3.6 in CCDC 14, which are the highest frequency to resolve MOC's major disputes in Canadian court cases.

4.7) Validation of the Proposed Analysis Framework

The proposed analysis framework (or fishbone model) comprises a comprehensive list of contract sources of ambiguity and disputes based on the extensive literature analysis. However, this model is not a unique model; additional classes and subcategories can be added to future

literature's new findings. Therefore, it is hard to validate. However, the proposed analysis framework is applied to evaluate the causes of disputes among selected Canadian court cases. The study continues to compare the two models (literature-based vs. case-based); the comparison result of the long-dominant construction method COC showed the serenity sign. During the court case analysis with the proposed analysis framework, a second opinion is always taken for each case to perform the categorization. In this respect, the proposed analysis framework can provide a certain competency level to identify and quantify the contractual sources of ambiguities and disputes for the MOC method.

Chapter 5 – Summary and Conclusion

5.1) Summary

The construction industry involves many professionals from various disciplines. Due to this nature of the construction industry, it is inevitable to contract claims and disputes among various stakeholders, even though the standard contracts are available. In this respect, the modular and off-site construction (MOC) may have a potential area which can occur a large volume of disputes and claims in the near future due to the following reasons: (i) excessive modification of the contract leading to the unclarity of terms and obligations and missing information in contract condition; (ii) fewer studies or references in terms of the contractual dispute causation through literature, litigation, and their correlation to improve the contract management and administration; and (iii) no MOC standard contract document even though it has been high attention in a decade. To address these challenges, this study proposes a methodology: (i) develop an ambiguity fishbone model to identify the sources of disputes in literature; (ii) examine all critical factors by classifying the court cases to identify the major root causes of litigation disputes, Canada; and (iii) not only evaluate the interrelation between the causes of major disputes in Canadian court cases and general conditions in standard contracts but also identify the associated preventive measures and/or methods from the literature to mitigate and/or prevent the repetitive occurrences in future.

A total of one hundred and four unique sources of ambiguity were identified from the selected literature by reviewing. These unique sources are taken as subclasses, clustered into 62 classes based on similarity. These are structured into fifteen subcategories and five categories of the fishbone model. They then quantified the frequency to have a level of importance of each subcategory. As a result, four top-ranked contract sources of ambiguity are 'ambiguity in contract terms', 'poor contract draftsmanship', 'contract modification issues', and 'lack of industry readiness'.

Construction litigation cases at the Supreme Court of Canada (SCC) and Superior Courts were also analyzed within the framework of the fishbone model. The top-five reasons for case filing included ambiguity in contract terms, poor contract draftsmanship, lack of common sense among contract entities, missing information, and modification issues. Our case analysis results show that ‘incomplete contract documents’ and ‘redundant information’ are the core reasons for conflict between contracted parties. For the MOC project, ‘poorly defined general provisions’, ‘unrealistic & illogical expectations’, and ‘unclear payment terms, procedure, certify’ are major causes of disputes identified in case analyses. These major causes of disputes can be addressed by the general conditions in the standard contract forms. However, there is a note that the MOC industry should modify the standard contract forms carefully, especially the definition of ‘Product’, in accordance with the nature of the MOC. This study also contributes to helping the contract drafters and general contractors (modular contractors) raise awareness of common disputes to enhance the contract administration and management in MOC when drafting and administering the contract.

5.2) Research Contributions

The fundamental contribution of this research was to provide contractual knowledge by enhancing contract management skills, especially in the MOC delivery method, to identify potential contractual dispute sources that cause litigation claims. Advanced understanding of contractual management will help avoid uncertainties when drafting and administering the contract.

Contribution 1: The proposed literature-based fishbone model provides contractual knowledge to identify potential contractual dispute sources.

Contribution 2: Canadian court case analysis provides causes of litigation in the Canadian construction industry and highlights the common contractual dispute casual factors of MOC and COC methods.

Contribution 3: This study provides an insight view or a reference to improve contract management and administration by learning prior knowledge about the potential causes of disputes from litigations to prevent and/or mitigate the repetitive occurrence in future projects.

Contribution 4: This study references developing the progress payment terms suitable for the MOC method as a preview to forming the MOC standard contract document.

Contribution 5: This study recommends adding the terms for transportation arrangement and building code compliance for modules to avoid contractual confusion during construction.

5.3) Limitations and Future Study

The limited availability of the relevant MOC cases at the Canadian Courts of selected provinces limits this study's findings. Some of the categories, such as ‘External Factors’, which have considerable support in our literature analysis, particularly correspond with MOC methods. Besides modular homes, supply and install of precast structural and architectural components are included among twenty MOC cases. There is no large scale, volumetric MOC projects to be analyzed. Another limitation in this study is that the quantification method chose to determine the level of severity of each class based on the frequency of occurrence in both literature identification and court case identification. Since a limited number of contractual dispute cases are available at the SCC, it could not provide a strong recommendation for causes of disputes that proceed till the final appeal court. Moreover, it is understandable to have a dependency and interrelation among the causes of the proposed framework's disputes (classes). The study limited the scope as set objectives and did not further study their dependency.

As of further study in court case analysis, it is recommended to add a large number of MOC contractual dispute cases from the remaining provinces and other court levels. Furthermore, the case collection, selection, and categorization of causes of disputes into the proposed analysis framework in this study are performed manually. It was time-consuming and human error potential even though the study took a second opinion for each case to be selected and categorized. The study suggests applying artificial intelligence technology that uses natural

language processing (NLP) to analyze the text from court case documents and MOC construction contracts for future study to efficient and effective case collection and selection process. Besides, text mining techniques can extract useful information buried in the mass of textual data from the court case documents and standard contract documents. The researcher believes this will facilitate court case analysis.

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Appendix - Selected Superior Court Cases Information

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
1	ON	2015	Sub	Client	supply & install structural steel at the bridge construction	unit price	subcontract	Plaintiff (DCM) now brings a motion for summary judgment on its claim for damages for the tort of conversion.	Deny owing to plaintiff
2	ON	2016	GC	Sub	to construct and install four staff quarters for firefighters	fixed price	Purchase Order	Plaintiff's claim for damages $ 1,677,397.52; this is an extra cost to award another sub-contractor for completing the work. The defendant did not perform the work and did not respond to the letter from Plaintiff.	Not respond to trial notice
3	BC	2002	GC	Client	supply and installation of precast concrete units	unit price	Written Letter	Plaintiff claims a fair and reasonable price for the supply and installation of precast concrete units into the project. Defendant says the plaintiff is only entitled to the price offered and accepted, together with approved changes and extras arising out of changes in the work scope. Defendant said the plaintiff is responsible for wrong assumptions.	Defendant said, Plaintiff was responsible for the design, and the design had to meet the minimum standards set out in the British Columbia Building Code. Plaintiff is responsible for the wrong assumption.
4	AB	2017	Sub	Client	to build four pumphouse buildings	unit price	Written Agreement	Plaintiff claims for the unpaid balance for the material supplied.	Defendant asserts that Plaintiff's work and materials do not relate to an 'improvement' as defined by the BLA, and therefore cannot form the basis for builders' liens.
5	ON	2006	Client	GC	Building a prefabricated house in an empty lot	lumpsum	Written Contract	Plaintiff claims that the house was not built parallel to the lake's shore, as she wanted, resulting in a significant loss of enjoyment to her. The plaintiff is suing for $200,000, quantify the negative impact of the misalignment of the house.	Defendant claims that it is protected from any liability by an exclusion clause in the contract. Defendant claims that it is protected from any liability by an exclusion clause in the contract.
6	QC	2009	Sub	GC & Insurance	Regional Sports and Cultural Complex	fixed price	subcontract (a prime contract is a fixed-price contract)	Plaintiff claims from the general contractor Defendant and insurance company concerning the payment of labor and materials (the surety contract), an amount of $ 199,864.49 for the manufacture and installation of prefabricated steel and concrete bleachers that he carried out in the building.	Defendant also pleads that because Plaintiff did not notify it of its debt within the time limit set under the terms of the surety contract, such a contract cannot be applied.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
7	BC	2013	GC	Client	a house built on their parcel of rural property	fixed price	Written Contract	Plaintiff issued a final invoice to the defendants. Plaintiff asked for payment of the contract's fixed price less than the estimated price to install the siding and install the decking. After making those adjustments and adding, the plaintiff's demand for payment total of $191,258.32. Plaintiff claimed extras in addition to that sum.	Defendant counterclaims that plaintiff is charging for work not done
8	BC	2000	GC	Client	manufacture and installation of a modular custom office building	fixed price	Signed Quotation	Plaintiff claims to balance the contract price and extras, the amount of $170,191.00. The total contract price of the installed building was $422,300.00 exclusive of G.S.T. Defendant paid the sum of $282,252.11 but declined to make the final payment, including G.S.T.	The cost of reinstatement: the difference in cost to the builder of the actual work done and the work specified; the diminution in value of the work due to the breach of contract.
9	ON	2005	Sub	Client	supply series of modular wall components	unit price	supply contract	The plaintiff claims to recover monies allegedly unpaid for products supplied by the plaintiff and a declaration that the plaintiff has an enforceable lien for those monies.	It has not defended this action and has been noted in default.
10	AB	2019	GC	Client	construction of modular homes	unit price	Written Contract	Plaintiff is suing Defendant for amounts that it alleges are due to her services and materials concerning the last of these homes. It is a modular home located on a residential lot based on contract and unjust enrichment. The remedy for unjust enrichment is quantum meruit (services rendered) and quantum valebat (goods delivered).	Defendant has filed a Statement of Defense; lien was not registered in time under the Builders' Lien Act. Also, Defendant has received "fair and reasonable compensation" for its role in constructing the Alberta Beach Home
11	BC	2018	Sub	GC	installation and modification of modular trailers	cost-plus fees	Oral Contract	The plaintiff claims the defendant owes the plaintiff $134,371.76 of unpaid debt according to an oral agreement (the "Contract") to place modular trailers on a site leased by the defendant. The plaintiff was to be compensated. The plaintiff completed the work and rendered invoices. The defendant paid them in part but did not pay them in full.	Defendant agreed with the plaintiff, as alleged or at all; alternatively, the terms are vague and uncertain and unenforceable. Defendant alleged the agreement was subject to a condition precedent, approval of the boards of CCAG and the defendant.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
12	QC	2012	Client	Sub	prefabrication of exterior structural panels	fixed price	Written Contract (P-3)	the plaintiff, claims from the other, the defendant, various amounts totaling $ 129,722.92, after amendment, to compensate for cost overruns, damage caused by delays, payments to suppliers, and disbursements incurred complete the work as well as for troubles and inconveniences.	The defendant denies all responsibility in the case and, by counterclaim, claims the balance of the account for the execution of the work, namely $ 39,946.03.
13	QC	2006	Client	GC	deliver and assemble the Log house	lumpsum	Written Contract	Plaintiff claims from the defendant the reimbursement of the installments paid totaling $ 56,384.31 and $ 15,000 for extrajudicial fees and $ 10,000 as exemplary damages. The claim totals $ 81,384.31. Plaintiff purchases from Defendant a log house; to deliver and assemble the house by a deadline. Defendant fails to deliver the house on time, and Plaintiff terminates the contract. Plaintiff claims (i) reimbursement of the installments; (ii) extrajudicial fees and (iii) exemplary damages	The defendants contest the action on the grounds that there is no need to lift the corporate veil and that there is no legal connection between them and the Plaintiff. They also plead that the latter wanders by terminating the contract with Defendant because it can at any time deliver the house within the agreed time.
14	ON	2019	Sub	GC	Supply labor and equipment for the construction of a prefabricated steel building provided by the manufacturer.	unit price	Written Contract	Plaintiff commenced this action by Statement of Claim alleging that it was not paid the balance of the agreed Subcontract price of $96,050. The Plaintiff claims $78,342.90.	Defendant denies liability based on set-off and counterclaims for $171,050.98, alleging that Plaintiff was negligent in performing short work and delaying the Project and improperly registered a lien claim against the Project. Plaintiff was negligent in performing deficient work and delaying the Project and improperly registered a lien claim against the Project

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
15	ON	2010	Consultant	Client	Project Mngt & Design Services	cost-plus fees	Written Contract	Plaintiff registered a construction lien for $42,008.16 and claims $45,862.47 as the balance due to providing project management and design services to the Defendant for the renovation of their home. There is no dispute that the services and materials were supplied. The only dispute regarding whether there were deficiencies and whether the contract was for a fixed price or on a “cost-plus” basis.	In their defense and counterclaim, the defendants asserted breach of contract and negligence claims against the plaintiff, including a personal injury claim for damages
16	AB	2006	GC	Client	construction of a cottage	cost-plus fees	Written Agreement	The Plaintiff sues the Defendants for $42,822.12, plus interest for material delivered and unpaid. Plaintiff maintains that, legally, once Defendant elected to terminate the contract, this absolved Plaintiff from any future performance for services under the contract. There was an agreement to pay $66,566.00 plus taxes for the package, plus a 5% management fee on materials and labor.	Counterclaim for $48,347.00 in damages, alleging that materials were not delivered or were delayed, materials and services supplied were deficient and overpriced and credits agreed upon were not applied.
17	BC	2017	Client	GC	Building a log lodge and outbuilding at a remote mountain location	unit price	one written and one oral	Plaintiff claims for money owing under the written agreement and the oral agreement. Plaintiff performed its obligations under this contract, along with extra work, and requested payment from the defendant. The defendant has refused to pay. Plaintiff claims for reasonable compensation are owed based on unjust enrichment. By not paying any amount under either contract, the plaintiff claims the defendant has breached both.	Under the terms alleged by the defendant, the Defendant says it has refused to pay the plaintiff any sum of money for its work because it was the plaintiff who breached the contract. It claims the plaintiff did so in two ways: By overcharging for the plaintiff’s workers on the second trip; and failing to complete the work on the first trip in the promised timeframe.
18	ON	2013	GC	Client	to repair home	unit price	Written Agreement	Plaintiff claims that monies were outstanding concerning the Plaintiff's three staircases to the Defendant-owner’s home according to a contract with the Defendant- general contractor.	The defendant defended the action and cross-claimed, alleging that the general contractor's home contained defects and deficiencies.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
19	ON	2012	Sub	Client	renovation and design work	cost-plus fees	Written Contract	The plaintiff claims damages under the Construction Lien Act for renovation and design work completed on the defendants' home. The original contract amount is $42,008.16. Claim $ 45,862.47 as the balance owing is for Project Mngt & Design Services.	Defendants asserted breach of contract and negligence claims against the plaintiff, including a personal injury claim for damages resulting from the plaintiff's alleged negligence about the renovation.
20	ON	2018	GC	Client	to construct a modular home	Not specified	Written Contract	Plaintiff claims unpaid balance for work done under the contract upon receiving Defendant's termination letter. Defendant hired Plaintiff to construct a modular home on their property. Defendant sign contract with Plaintiff. A dispute arose, and the defendants became dissatisfied with the plaintiff, which in turn felt funds were left owing for work done.	Defendant seeks an order returning the security deposit on the basis that the Lien was not preserved and perfected within timelines set out in the Construction Lien Act (CLA). Defendants sent a letter -contract termination. Defendant hired sub-trades directly to complete the work and paid directly by them.
21	ON	2005	Client (end-user)	Client (developer) & Consultant	construction of a subfloor in a large food store	unit price	written contract	Plaintiff takes the position that the loss it sustained resulted, at least in part, from the defendants' negligent actions. Specifically, since by contract Defendant had full responsibility for repairing the floor, Plaintiff only agreed to share in the cost as a practical solution at the time and on the basis that it would then "come after" the defendants to recoup its losses.	Defendant denies that either letter exceeded the architect's authority in that they were meant to relate only to architectural matters, were understood as such, and were in no way relied on its negotiations with the plaintiff.
22	QC	2018	Client	Consultant	Exterior cladding architect design	lumpsum	written contract	The dispute concerns the damage resulting from the deterioration of the exterior envelope of a building. Plaintiff jointly claims the sum of $ 575,805.65 to Defendant, representing the cost of corrective work deemed necessary due to water infiltration resulting, in his opinion, from the poor design of architectural plans for the exterior cladding of the building. Plaintiff bases its action on defendant breach of the rules of the art; Design defect.	Defendant observed deterioration is related to the construction of the exterior walls, which includes the prefabrication of the sections and their assembly on the site, installing the windows, and maintaining the seals. This deterioration is exclusively due to the faults and/or omissions of the Plaintiffs.

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23	AB	2012	Client	Consultant	structural and architectural design and consultation	lumpsum	Architect Agreement	Plaintiff makes claims in both contract claim and tort claim to Defendants for breach of Architect Agreement, breach of implied terms (compliance with industry-standard/ compliance with regulations / reasonably fit for the intended purpose), and cost for damages.	Claim for breach of Architect Agreement. Plaintiffs counter by saying that the BCBC does not permit such a “hybrid” approach and does not meet the standard of care. Plaintiff did not make clear in his evidence where he had used Part 9 and where he had used Part 4.
24	BC	2000	Client	Consultant	construction of hotel	unit price	written agreement	Plaintiff now alleges that Defendant made false representations which induced it to enter into the purchase agreement and the management agreement with the defendant. Its further advances against Defendant claims for damages for negligence, negligent misrepresentation, and breach of contract. It brings this action to recover those alleged damages.	Defendant denies the allegations of the Plaintiff and accuses it of breach of contract. In particular, Defendant alleges that Plaintiff failed to make payments when due, failed to cooperate and interfered with the exercise of Defendant's responsibilities.
25	ON	2015	Client	Consultant	construction of the plastic surgery clinic building	lumpsum	Construction Management Contract (CCA 5-1988)	Plaintiffs claim damages for negligence in selecting and installing the building cladding for the plastic surgery clinic. Seeking damages of $4 million claim for loss of opportunity. As Defendants performed their obligations in a manner which was negligent and a significant departure from construction industry best practices resulting in widespread deficiencies and failure to construct following the construction documents, including the drawings and specifications) and the as-built condition.	This claim for indemnity of the Defendant's defense costs and damages that may be apportioned against it in action is made by way of set-off. Set-off must be either legal or equitable, and legal set-off requires mutuality of liquidated claims.
26	AB	2000	Client	Consultant	renovating the old Theatres and some adjoining space	fixed price	Written Letter	Plaintiff hired defendant for Architect and Engineering service. With a budget of $450,000 in mind and a wish to complete the project in 90 days. Plaintiff acknowledges one change to the pricing, the bridge's addition, a total revised project cost of $480,000. Defendant’s liability for any overrun on the budget, losses alleged by the Plaintiffs. Due to delays and damages claimed because of storage, acoustical and capacity problems.	The Defendants deny all these claims.

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27	ON	2016	Client	Consultant	Renovation Work (Construction Management Contract)	cost-plus fees	Construction Management Contract (the "CMC")	Plaintiffs claim the return of amounts allegedly overpaid and the benefit of a penalty clause applicable in the event of delay in completing the construction project supervised by the defendant. Plaintiff paid $14,053 alleged to have been overpaid Defendant under the CMC. $36,160 in respect of alleged delay in completing the project arising from Failure to install the feature wall and reception desk; Failure to remove when requested a master switch that turned off all power instead of merely lights; and Failure to install a small door on a kitchen cabinet.	The claims to return of funds allegedly paid more than contractual requirements similarly fails because the plaintiff has failed to establish that any amount was paid by inadvertence or was paid because of a mistake.
28	QC	2018	Client	Consultant	Corrective work on a building	fixed price	written contract	Plaintiff claims from the defendants the sum of $ 672,192 to provide for the correction of disorders, defects, vices, poor workmanship, breaches of the art and surveillance rules, and/or work not following the regulations affecting the building. All the defendants finally argue that the damages claimed are either excessive or constitute an unclaimed capital gain.	All the defendants argue that the damages claimed are either excessive or constitute unclaimable capital gains.
29	BC	2001	Client	Consultant & GC	Construction and Design of three buildings	Not specified	Not specified	Plaintiff claims damage the sum of $3,246,739.56. This includes the cost of redoing the buildings' exterior features for repairs to the three buildings, made necessary by wood rot in the exterior wall sheathing, studs, and beams. Plaintiffs' action alleges negligent approval of the building permit's application, a negligent inspection of construction, and negligence in the occupancy permit's final act of issuance.	No counterclaim

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30	ON	2012	Client	GC	luxury condominium project	stipulated price	CCDC-2	Plaintiff alleges that Defendant breached its obligations under the CCDC2 & terminated the contract with Defendant. Plaintiff sues for the amounts it had to pay to complete work or rectify deficiencies over the original fixed price and damages resulting from the delay. The contract price was increased by $50 million. The project was completed 20 months later than the date specified in the construction contract. The plaintiff alleges that Defendant charged items as extras included in the contract and failed to pursue the work with diligence.	It is an action for repayment of a loan of $240,000 together with accrued interest. In that action, it is alleged that Defendant personally guaranteed the debt. Defendant denies personal liability.
31	ON	2008	Sub*	GC	supplying and installing wood paneling and interior doors	unit price	written contract	A number of disputes arose in respect of payment, change orders, and deficiencies. Some of the Plaintiff's invoices were not paid, and Plaintiff registered a claim for lien for $322,002.36.	The defendant's cost claim is $54,100.62 on a partial indemnity scale and $78,589 on a substantial indemnity scale.
32	AB	2012	Client	GC	construction of house	cost-plus fees	signed the Project Management Agreement (PMA)	Trial parties disagree on the amount of money, should be paid for its work managing the construction of the Plaintiff's new house. Plaintiff stopped paying the invoices (overbudget), so Defendant ceased the work until the outstanding invoices were paid. Plaintiff hired another contractor to complete the work & claim the Defendant for extra costs.	Defendant says that Plaintiff still owes it another $152,454.73 and counterclaims for that amount.
33	AB	2003	Client	GC	Excavation and filling (at developing mobile home park)	unit price	written contract	Plaintiff argues that Defendant was overpaid by $53,460.94 and further that Defendant failed to supervise the worksite properly, used materials over those required to meet specifications, and either failed to complete the contract or did so negligently. Plaintiff alleges damages of $68,462.00 resulting from Defendant's conduct. Plaintiff argues quantum meruit and says that the Defendant is only entitled to the fair value of the work performed. Unit pricing is the fairest method of calculating the payment.	The defendant says that the contract between the parties is an hourly rate agreement. The project's ultimate cost was directly related to an increase in the earth's quantities that had to be moved or excavated. Defendant seeks $164,577.56, which represents unpaid invoices for work done on the project and further seeks interest at prime plus 2.5% on this balance.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
34	BC	2005	Client	GC	demolition, excavation, and backfill	lumpsum	written contract	The plaintiff claims damages against the defendant for breach of contract (ignore the call to resume the work/ refuse to complete the work). The claim alleged that the defendant wholly failed to complete the contract. The dispute over the number of daily truck loads. Plaintiff said that he had to find other contractors to do the backfill and drain tile work the defendant refused to complete.	The defendant denied a written contract and denied that it failed to complete all the works substantially agreed to be performed by the defendant on the plaintiff's property. The defendant had counterclaimed for the balance of the monies owing on the completed part of the contract.
35	ON	2013	Client	GC	Removing earth & fill	cost-plus fees	CCDC-1	Plaintiff seeks to leave to appeal the arbitration award and the supplementary award. The Arbitrator awarded Defendant $88,100 plus GST concerning what the parties call the "earthworks issue" and a further $80,226.46 concerning the "other invoices" issue.	Defendant claims that the plaintiff should pay $231,766.23. It characterized this sum as relating to "the holdback and the CvH billings which were withheld pending the trial
36	QC	2016	Client	GC	concentrate storage Building, to install four warehouse shelters	unit price	purchase order	Plaintiff seeks the issuance of an injunction ordering Defendant to abandon the two structures and other components of the warehouse shelters and allow it to use said warehouse shelters. Plaintiff did not pay the amounts provided for in the contract schedule. The unit price doubles for additional warehouse shelter. *[In Quebec law, an injunction can be requested in order to obtain the execution of a contract.]*	Request to dismiss the claim
37	QC	2013	Client	GC	Warehouse extension	stipulated price	Stipulated Price Contract (SPC)	Plaintiff had registered a legal hypothec on the Defendant's building to cover payments still due and also claims payment for two additional invoices.	Plaintiff and Defendant signed the Stipulated Price Contract. The defendant put an end to the contract. Defendant claims that even though he signed the contract, he never meant it to represent the parties' agreement. Instead, parties had concluded a verbal "cost-plus" contract.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
38	BC	2013	Client	GC	construction and project management work for an in-ground pool, spa, cabana, decks, concrete planters, a water feature, and retaining walls in the backyard of the plaintiff's home	cost-plus fees	written contract	The plaintiff claims fundamental breach of contract (poor performance, poor project management, often unsupervised, claim for unattended work hours) and failure of consideration (mandatory completion date). She seeks recovery of the approximately $180,000.00 she paid to the defendant. Plaintiff spent $132,614.61 to remedy the defendant's defects and to complete the project.	The defendant counterclaims for $47,167.40 in respect of unpaid invoices. The defendant registered a Builders Lien against the title to the plaintiff's home for $39,936.77.
39	ON	2009	Client	GC	for building an addition to, and renovation and repair of, a mobile home	fixed price	written contract	The plaintiff seeks a sum of $41,000 from the defendant either by way of damages for breach of contract or as a result of unjust enrichment due to overpayment on two contracts. Plaintiff's insurance company is resulting in payment to the plaintiff of $44,000 for remedial work on the mobile home and temporary living expenses and disruption. (to repair the damage by a storm). Their second contract is formed to repair the roofing.	Defendant counterclaims by way of set-off for $50,000 for extra work done and extra-contractual services performed. Neither party was entirely credible in giving their evidence. The plaintiff claimed that the defendant had quoted $15,000.00 to do all remedial work listed in the Golden Contracting quotation when it is clear that she advanced him over $40,000.00 of insurance proceeds at the beginning of the work. The defendant insisted that he had completed work on the deck in the face of clear evidence that there was no railing. Therefore no occupancy permit would be issued by the municipality.
40	BC	2016	Client	GC	Renovation home	cost-plus fees or fixed price dispute	written contract (a written "Estimate", oral representations, and email)	The plaintiffs claim a large number of deficiencies in the defendant's work. Plaintiffs say the written "Estimate" amounted to a contract. The work cost was significantly more than the low and top ranges in the estimate document, and there were significant delays. Depending on whether there is a fixed price or cost-plus contract.	Pursuant to the contract, the plaintiffs have paid $40,000 to the defendant for work and materials. However, they refuse to pay the additional $50,417.95 claimed by the defendant in its counterclaim as part of the contract.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
41	BC	2008	Client	GC	a home renovation	fixed price	written contract	Plaintiff also takes issue with the Defendant's work quality and seeks a set-off for the costs he incurred in having another contractor complete the Project after Plaintiff denied Defendant access to the Project midway through the renovations. Plaintiff claimed defendant abandoned the job.	Defendant counterclaims for damages for unjust enrichment for the work he performed on the shed for which he was not paid. He also alleges the plaintiff converted his cement mixer and some tools remaining on the plaintiff's property after the project was terminated.
42	ON	2012	Client	GC	the construction of a new Vietnamese-Thai restaurant	unit price	written contract	Plaintiffs now claim damages for the total amount of $162,000 to hire a new contractor to complete the project because the defendants did not fulfill their part of the bargain. Over time, while receiving almost all of the promised funds on the contract, the construction project experienced many unfortunate delays and was ultimately never adequately completed. When the defendants stopped work on the project, the plaintiffs were left to hire another contractor to complete the project so that the new restaurant could open for business.	Defendants admit that there were delays in the construction project, but they blame the plaintiffs for these delays. Defendants claim that the plaintiff's responsibility was to arrange to design the necessary building plans and apply for the required building permits. Their delays in so doing caused the delays in the project. However, they continued to work diligently on the construction project until they were locked out of the plaintiffs' premises. Defendants have launched a counterclaim against the plaintiffs, alleging their damages of some $26,000. These additional costs were not part of the original contract. The defendants claim that the plaintiffs owe them for the cost of these extras.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
43	ON	2016	Client	GC	to design and draft renovations to the home	fixed price	Canadian Standard Form of Agreement Between Client and Architect Abbreviated Version	Third-party Plaintiff entered into a “Canadian Standard Form of Agreement Between Client and Architect Abbreviated Version” to design and draft renovations to the home. The parties agree the contract provided a six-year limitation of liability for all claims following “substantial performance of the work” end of 1994. Plaintiff alleges discovering water damage and mold growth within the structure requiring extensive remediation and repair in Aug 2008.	No counterclaim
44	ON	2016	Client	GC	to install a swimming pool in their backyard	fixed price	written contract	Plaintiff entered into a contract with Defendant to install a swimming pool in their backyard. Plaintiff by third-party claim subcontracted with Third-party, which supplied liquid concrete to Defendant for installing the cement patio that cracked worked under Defendant's direction. The plaintiffs’ bill of costs proposes partial indemnity fees of $47,104.00 and substantial indemnity fees of $70,655.50. As he noticed cracks in the cement patio installed by Defendant between the edge of the swimming pool and their house.	Defendants counterclaims for extras that it alleges it supplied according to an oral agreement.
45	BC	2010	Client	GC & Insurance	installation of a metal clad roof on the home	fixed price	Written Letter	The plaintiff alleges that Defendant breached the contract: the roof was not installed properly and professionally. Plaintiffs allege that Defendant abandoned the contract. The plaintiffs seek pecuniary damages for $25,152.27, which represents (i) the various expenses they have incurred to do the temporary repairs to the roof; (ii) the repairs to the interior of the residence up to the date of trial; (iii) the repairs that still need to be done to the remaining damage to the ceilings, floors and carpets; and, (iv) the estimated cost of replacing the existing roof.	Plaintiff received an invoice from the defendant to install the metal-clad roof for $11,839.55.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
46	QC	2001	Client	Insurance & GC	Construction and installation of a new roof for the Montreal Olympic Stadium (Stade)	surety	insurance contracts	Plaintiff claims jointly and severally the sum of $ 3,965,771 representing the insurance indemnity paid by (...)to three of its insureds. Plaintiff asks the Court to declare that their insurer, Defendant, has an obligation to assume their defense in action by a motion for declaratory judgment.	Defendant contests this procedure for the following reasons:The insurance contract does not guarantee the plaintiff's claim, and,b) in the alternative, Oppenheim's claim is expressly excluded from the guarantee provided for in the insurance contract.
47	ON	2003	Client	Insurance & GC	construction of a commercial building	stipulated price	CCDC-2	The plaintiffs seek to recover damages from the defendants (Contractor; & Consultant) for breach of contract and/or negligence regarding the design and construction of their commercial building in the City of Kingston, Ontario.	No counterclaim
48	BC	2014	Consultant	Client	supply architectural services for the development of the subject land, including a hotel, a seniors housing facility, and a four-story mini-storage facility (“the Project”).	fixed price	AIBC Document 8C - 2010 Standard Short Form Contract between Client and Consultant	Plaintiff (architectural firm) seeks a judgment for the number of their invoices to the Defendant (developers) and a declaration of a builder’s lien for the amount found to be due to the plaintiffs. The Client's obligation to pay the architect's fees and reimbursable expenses and referred to a fixed fee of $127,000. Payment terms in contract: invoices are to be submitted monthly and are due on receipt with an interest of 22% if payment is late.	Defendants allege the plaintiff failed to perform its services as contemplated by the architectural agreement, resulting in the plaintiff’s contract being terminated by the defendants. As a result, the defendants submit that the plaintiff is not entitled to payment of its invoices.
49	BC	2001	Consultant	Client	Design and construction of a pub and restaurant	stipulated price	written contract	Plaintiffs claim for monies for their service work done under the contract. (Dispute over the definition of the word "Improvement") Plaintiff was required to perform the work designed by other plaintiff and required by the contract documents. Plaintiff was to provide the services described in the contract and correspondence for a fee of $75,000.	There is no “improvement” as defined in the Act. The construction work contemplated was never undertaken.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
50	ON	2009	Consultant	Client	construction of a garage and deck for the defendants.	lumpsum	Construction Management Contract (CCA 5-1988)	Defendants refused to pay the balance of the plaintiff's fees and the costs incurred; the plaintiff registered a lien against the defendants' property in July 2006 and commenced this action for the balance due under the $8,383.27 contract, plus interest and costs. As a result of the defendants' refusal to pay the balance due, the plaintiff stopped work except for some minor warranty repairs made to the siding on the garage and adjustments to the garage door.	Defendants counterclaim against the plaintiff for damages for breach of contract and negligence in the contract's performance. The total amount claimed by the defendants is $8,484.84 plus interest. They contend that the plaintiff destroyed their gardens during construction. The evidence is that a significant amount of clay was piled on the existing gardens. It had to be carted away and the plants replaced.
51	ON	2011	Consultant	Client	Construction management services for the construction of a one-story clubhouse	lumpsum	Construction Management Contract (CCA 5-1988)	Plaintiff claimed payment of $491,626.11, a lien of $325,393, damages of $250,000, priority over the two mortgagees, and interest and costs. Plaintiff claim damages for breach of contract; for services and materials related to an improvement. The base document was a CCA standard form construction management contract form. The total contract fee for the whole job was $300,000, broken out as between the Pre-Construction Phase, the Construction Phase, and a Post-Construction Phase.	Defendants' factum, their counsel, raises a further issue: the lien was not preserved in time. The defendants wanted to be able to pay security of $150,000 plus costs rather than the lien claim amount of $188,125 plus costs to "bond off" the lien, under s. 44 (2), based on the fact that at least some of the lien claimant's services were not alienable.
52	AB	2014	Consultant	Client	Contractor Services Agreement (CSA) for a commercial complex project	lumpsum	Contractor Services Agreement: Terms, includes schedules, policies, and practices	Involved termination of the contract under a Contractor Services Agreement without providing the reasons for months. Leaving the Plaintiff uncertain how to explain termination to potential clients caused her financial losses and reputation loss. Damages, in an amount reflecting the calculation of amounts owing according to clause 2.2(b) of the CSA for early termination, 1,057,426.65. Damages for loss of reputation and consequent loss of profits, interest, etc.	Plaintiff and Defendant entered into the CSA contract with fixed terms on July 2007, with renewal provision. The contract was terminated in June 2009. Plaintiff breach of contract terms. (must follow the Defendant company's policy)

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53	BC	2007	GC	Client	construction of house	fixed price	building contract	For unpaid construction cost and termination of the contract without notice. The contract price inclusive of taxes was $250,000. Plaintiff said 97% of contract work done. Plaintiffs allege that they performed the contract and certain extras (7 changes), which raised the price to $275,000. Claim for damage/ loss of profit due to termination of the contract	Deficiencies in the house at foundation and plumbing & heating system. Damages for the cost of completion (the house is only 88% complete). Lost market value. The defendants say various breaches of the contract by the builder entitled them to repudiate the contract.
54	ON	2007	GC	Client	Asphalt Paving work at an existing Gravel lot	fixed price	written contract	Plaintiff carried out the work and submitted the invoice $104,557.48 (estimated 37% of total work done claim), but was not wholly paid for work performed,	Defendant counterclaims for deficiencies in work done by the plaintiff. Completed work is wholly unacceptable and virtually no use to the defendant due to thin asphalt and poor compaction of the base. This work must be redone. Defendant's claim for damage.
55	ON	2013	GC	Client	surface treatment for a highway	Not specified	a method specification contract	Plaintiff and Defendant dispute over the amount for extra work to remove and replace surface treatment, which Plaintiff completed but due to visible deterioration signs. Surface treatment began to exhibit visible signs of deterioration. This trial establishes responsibility for this double lift surface treatment being performed twice by the General Contractor, as demanded by the Owner. Express terms of the Contract, including both the Warranty and the Quality Control provisions.	Does the defendant specify this material issue in dispute as being ‘whether the contractor ought to be held to the Warranty provisions in the Contract due to his selection of Class 2 aggregate’? Damage claim against the plaintiff
56	ON	2018	GC	Client	reconstruction of a 1.2 km portion of Road	stipulated price	written contract	Plaintiff seeks in this action payment for three categories of items: Unpaid quantity x unit price line items in the contract; Unpaid claims for the cost of changes or extra work during construction; Unpaid claims for changes and extras discovered after the action.	Deny owing to plaintiff claim

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
57	BC	2004	GC	Client	Electrical conduit work to building	unit price	contract (supply and install)	Dispute final payment amount certified for work done quantity. The agreed contract price, subject to allowed additions and deductions, was $853,062.00. Plaintiff claim that calculation and maintains that the value of the work done in the immediate vicinity of the improvement either on the actual land owned by Defendant, pursuant to the Contract would be approximately $135,299.00.	Defendant seeks an order dismissing Plaintiff claim, except for an admitted lien in the amount of $11,190.00
58	ON	2017	GC	Client	install a fiberglass pool	lumpsum	contract (supply and install)	For failure to pay for the installation of the pool. Defendant has paid $43,433.55 toward the total project price of $87,014.52. This leaves a balance owing of $43,580.97.	Defendant disputed the contract amount and alleged several deficiencies with the plaintiff's work.
59	ON	2002	GC	Client	excavation and filling	stipulated price	Stipulated Price Contract.	For unpaid payment of the sum of $159,628.88, representing extra work performed. Plaintiff's original estimate set out in the Contract Documents was based on the defendant's soil consultant's report and the topographical site map.	Defendant denies that this amount or any amount is due and owing to the plaintiff in respect of the extra work under the construction contract.
60	ON	2006	GC	Client	construction of a wood barn and drive shed	fixed price	standard construction contract	The parties agreed to terminate the contract before the completion of the project. The plaintiff contractor claims that it is entitled to monies owed for work completed on the project before the mutual termination. This includes work for approved and unapproved change orders and extras.	Defendant argues that the contract allocated costs for the completion of construction items. Plaintiff is only entitled to the percentage of the work performed for the items that were not completed as of the termination date. The defendant's position is that the parties agreed that the architect would calculate the value, or the percentage of the work completed for the unfinished items to determine the amount owing for work completed.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
61	ON	2007	GC	Client	construction of a 50,000 square foot building	stipulated price	Canadian Construction Association CCA 14-2000 contract	Delay in payment response, & Plaintiff suspend the work and left the site (incomplete roofing work cause water leakage damage). A significant disagreement between the parties relates to the value of the contract's office portion that should be recognized as the value necessary to complete the work.	The defendant breaches the contract with a letter, seeking to back charge Plaintiff $96,931 for the pit and $35,000 for pole-to-panel services. The judge finds that to be a breach of the contract provisions contained in paragraph 7.2.3.2 and 7.2.3.4.
62	ON	2004	GC	Client	Construction of the new house	lumpsum	construction contract + supplementary contract (additional agreement during original contract)	Plaintiff dispute lien ($ 105,529.23) invoice. The payment response was a delay (not get paid two invoices). Plaintiff suspends the work and left the site for no payment.	The defendants deny they owe the plaintiff anything. Alternatively, they deny they owe this much to the plaintiff. They also claim a large set-off or counterclaim.
63	ON	2003	GC	Client	construction of food processing unit	lumpsum	a fairly standard form was used, to which the parties added **tersely**, typed additional conditions	For "hold-back" for payment of $104,131.23 plus G.S.T. from a total contract price of $1,094,720.00. The project was six months behind schedule.	Defendants' counterclaim for almost $500,000.00 for loss of profits, financing costs, and salaries for the plaintiff's "delay" in completing the contract, plus approximately $50,000.00 for alleged deficiencies in the plaintiff's work.
64	BC	2009	GC	Client	Constructing a new home	lumpsum	construction contract	Plaintiff is demanding payment of the drywall draw (3rd payment), which the plaintiff said was overdue. Defendants did not respond. Counsel for the plaintiff advised the defendants by letter that they were in breach of the contract. The plaintiff also claims a loss of 15% profit on the total cost of the construction, which it anticipated it would receive at the completion of the project.	Defendants claim that plaintiff who breached the contract by refusing to continue construction work, failing to fix the deficiencies, asserting the claim for incomplete work, claim damages from delay

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65	BC	2007	GC	Client	construction of the quality house	fixed price	Written Contract	Plaintiff provided the Defendant with a statement of Allowances and Extras totaling $96,040.56 after the agreed contract amount is paid. Defendant refused to pay most of the amount claimed, saying the amounts claimed were not part of the contract. Trial parties signed on the written contract is pre-printed Contract prepared by Plaintiff without legal advice.	Defendant says that the contract was for a fixed price of $461,200 and that allowances never formed part of the contract. The defendant is responsible only for that amount, plus any additional items to which he expressly agreed.
66	BC	2019	GC	Client	design and construction of the New House	fixed price	building contract	Arising from a construction dispute with Defendant refuse to pay and continued to refuse to make the payment (Milestone 4) despite several requests for her to do so and for lost profit. Unlawful termination of the contract.	Defendant has filed a counterclaim against the plaintiff and seeks a full accounting of actual costs incurred by Plaintiff during the construction of the New House; damages for breach of contract, and breach of honest performance, and punitive damages. Defendant also claims negligence, fraudulent misrepresentation, deceit, and abuse of process, against Plaintiff.
67	BC	2016	GC	Client	construction of house	cost-plus fees	Signed Quotation	This action involves a construction dispute and a wrongful dismissal claim. Plaintiff asserted that monies remain owing under the cost-plus agreement, which Defendant refuses to pay. Various disputes between the parties arose, principally relating to Plaintiff's requests for payment of construction costs and Defendant's refusal or inability to pay them. Ultimately, the parties disagreed as to the financial terms upon which the House was to be built.	Defendant argued that there were numerous deficiencies in the House's construction, and construction was not complete by the agreed-upon deadline of January 1, 2013. After the construction issues came to a head, Plaintiff was dismissed from his employment as Estimator at Plaintiff's company. He alleges that Plaintiff terminated him without cause and notice. Defendant seeks damages for what he describes as the wrongful dismissal, including aggravated damages.

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68	BC	2018	GC	Client	Painting services on high rise building	fixed price	CCA-17	Plaintiff claimed that $1,215,000 was due and owing for monies owed under a contract to provide painting services on a new high-rise building in downtown Vancouver. Plaintiff submitted a total of 9 progress claims, and 6 out of 9 are paid. Later, Plaintiff received a "Termination Notice" from Defendant.	The defendants' counterclaimed that Plaintiff breached the Contract and had deficiencies in its work, causing the Defendant to suffer loss and damage. Defendants' claim to set-off as a defense to Plaintiff's claims regarding monies owed to Atlas for its services.
69	BC	2004	GC	Client	the construction of a commercial building	cost-plus fees	letter of intent	Plaintiffs alleged that the Defendants behaved fraudulently by acting with deceit and misrepresentation. To recover monies said to be owed to it by the defendant company. The amount of overcharging was somewhere between $135,000 and $170,000. At issue are the cost of this building and the reasons for that cost (quality provided).	The counterclaim alleges that Defendants have been defrauded by being deceitfully overcharged with the construction cost of this building. The estimated overcharging amount was somewhere between $135,000 and $170,000. Defendant claims Plaintiff breach of contract for not performed its obligations under its terms of engagement.
70	ON	2014	GC	Client	framing work	fixed price	Joint Venture	Plaintiff agreed upon scope of work was the framing for each of the Joint Venture properties; to do this work for a fixed price of $18,000 per house. Plaintiff claims unpaid invoices for three different projects, a total of $70,400 for framing work. Also, Plaintiff claims extras for site supervision work and other extras works.	Defendants defended and raised a $40,000 counterclaim. Defendants defended and raised a $40,000 counterclaim.
71	ON	2011	GC	Client	renovation of the Cambridge Meat facility, supply and install structural steel	unit price	Oral contract	Plaintiff submits the invoice upon the completion of work but was not paid. A subsequent dispute over deficiencies leads to this lawsuit.	Defendant resists payment, claiming deficiencies, and counterclaims for rectification expense and loss of profit. The cost of corrections in detail; Total $501,191

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72	ON	2016	GC	Client	construction of a biomass energy plant	unit price	Written Contract	Plaintiff (general contractor) sued Defendant (Owner) for monies owing. Liens have been filed, claiming, in total, $42,369,951.16. Plaintiff requests to court a single consolidated arbitration to determine all claims concerning the project. (Each of 5 sub-contractors has sued Plaintiff for money owing)	No counterclaim
73	ON	2012	GC	Client	Two separate projects: a landscaping project and a window replacement project.	lumpsum	Formal agreement	Plaintiff claims Defendant for the unpaid balance amount $8,946.39 inclusive of GST for the fence, $37,394.37 inclusive of GST for the interlock, and $12,504.90 for the deck. Also, a signed change order added $2,700.00 (tax included) to the deck contract.	Defendant has estimated the damage at the full cost of the shed or $5,000.00 and suggests that the damage is impossible to repair. Defendants have estimated the cost of repairing the deficiency (drain) at $4,500.00, whereas the plaintiff estimated it at $2,000.00. Defendant complaint "new windows do not match with existing window design" and "significant leaks because the windows were not watertight."
74	ON	2013	GC	Client	build a custom home	cost-plus fees	Construction Contract	Amid construction, Plaintiff claims the defendants terminated the Construction Contract without cause. Plaintiff seeks damages for breach of contract in part, relying on the restrictive covenants attached to the Agreement of Purchase and Sale. Plaintiff denies any breach of contract and submits the Defendant's provisions have no application as a defense or by Counterclaim as argued by the defendants. Plaintiff also denies any trespass on the defendants' lot.	Defendants submit they terminated the Construction Contract because Plaintiff exceeded the project's cost estimate, invoiced them for services unrelated to the Construction Contract, and failed to meet the construction schedule. Defendants seek damages from Plaintiff of $100,000 for breach of contract and a refund of $52,545.46. Also, seek damages for trespass, claiming that Plaintiff or its agents entered their lot without permission after construction stopped.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
75	QC	2015	GC	Client	construction of basement garage	fixed price	letter of intent	(i) Plaintiff (Contractor) claims for a balance due to the project's work and alleged extras. Plaintiff (contractor) send the standard form CCDC 2 (1994) but Defendant (owner) but no sign. All parties agree that no other contractual document was ever signed.	Defendant (Owner) counterclaims, amongst other things, for the cost alleged to finish the project following the Plaintiff (Contractor), are leaving the job site before the end of work, as well as ancillary damages, delay and damage cost to complete the works)
76	BC	2016	GC	Client	renovating the garden and house	fixed price	Signed Quotation	Plaintiff's claim for $83,360.00 as a first charge against the defendant's property and damages for materials and supplies withheld by the defendant. According to the plaintiff, the defendant is required to pay an additional $83,360. This is for work not yet paid for and for HST. It is agreed that there were three contracts dated June 20, 2012, July 20, 2012, and August 13, 2012. All three of these documents were signed by both parties, and the total contract price is $200,000.	There were 47 deficiencies in the plaintiff's work, and that the plaintiff did not perform significant parts of his contract. She also claims that the plaintiff was negligent in performing the work.
77	ON	2008	GC	Client	design, manufacture, and installation of a kitchen in the defendants' residence.	lumpsum	written contract (incl. a covering order form containing some terms and conditions, and scope of work)	Plaintiff's claim for payment pursuant to an agreement resulted from the non-payment of the balance due by the defendants on the contract, the plaintiff filed and perfected a construction lien. Defendant refused to pay at the time because, in her understanding, the term "cabinets" included the doors, and the doors themselves were to be installed at a subsequent stage of installation.	Defendant testified that she had left the kitchen in an unfinished state since that day, except to install the counters, appliances, and backsplashes. Initially, she wanted the doors to be replaced by doors that, in her perception, matched the sample door. She now takes the position that "the kitchen is all screwed up" and wants it out of her house. She says, quite rightly: "I deserve a beautiful kitchen."

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
78	ON	2012	GC	Client	to renovate and rehabilitate a 14-unit residential building	cost-plus fees	Contract and the Terms document	Plaintiff claims the unpaid difference (total contract price $400,311.95 - total paid amount $293,918.90), fewer completion costs. Also, the Plaintiff claims that the defendant terminated the contract by telephone call without having sufficient grounds.	Defendants submit that Plaintiff is not entitled to be paid for any additional extra charges or overhead charges. Their position is that the additional extra charges claimed are for work that was unauthorized or otherwise included in the scope of the work described in the contract. Defendants also submit that some of Plaintiff's work is incomplete or deficient. Thus, the defendants request a set-off and/or a counterclaim for the cost of completing or correcting the Plaintiff's work. Defendant gave two primary reasons for his contract termination; Plaintiff failed to complete the contract on or before December 31, 2006. Plaintiff had abandoned the contract as of approximately January 5, 2007.
79	ON	2013	GC	Client	to carry out renovations and improvements at home	unit price	written contract	Plaintiff worked for Defendant's home renovation for eleven weeks, but Defendant only paid him for seven weeks. Thus, Defendant registered a claim for lien for $30,716.00 (total unpaid four invoices)	Defendant complains that Plaintiff overcharged for the work, that the house did not need all of the work that Plaintiff carried out, that she paid too much, that the work was deficient, and that Plaintiff did not properly clean her home when he finished.
80	ON	2004	GC	Client	to install an epoxy floor system in the fitness center	lumpsum	written contract	Plaintiff claim for unpaid balance for work done. Plaintiff contracted with the defendant to install an epoxy floor system in the defendant's Fitness Center, a total contract price of $43,324.35.	Defendant counterclaims for $119,339.66 from the plaintiff to install "a rubber flooring" system. After removing the epoxy floor, the defendant claims were improperly installed.

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81	ON	2012	GC	Client	Renovation of home	fixed price	written contract	Plaintiff (contractor) claim for payment of the balance alleged to be owing by the defendant (homeowner) for work done and material supplied by the contractor in connection with the homeowner's home's renovation, in the amount of $28,387.40. The original contracted price was $153,035.10, then increased to $158,957.60 with these additional 11 items totaling $5,922.50. The final is $168,893.60.	The defendant claims a set-off/counterclaim for credits for non-agreed to extras and incomplete work, the cost to repair deficiencies, and other miscellaneous damages for breach of contract. Counterclaim for $50,000.00 in damages.
82	BC	2015	GC	Client	Three water leaks and a windstorm resulted in costly damage to the house	fixed price	written contract	Plaintiff claims unpaid balance for work done (outstanding invoice, for a total of $109,970.03 plus interest) against Defendant.	Defendants say there was a contract, but there was no breach because not all the work was completed and, at most, the plaintiffs may be entitled to just over $5,000 for work done. They also say there was no reliable evidence adduced about the value of the plaintiffs' work.
83	BC	2002	GC	Client	rock excavation for building the Cedar Secondary School	unit price	Written letter	The plaintiff completed the work according to the terms of the contract. The plaintiff's first three invoices included the tender price plus extra amounts for work described as "rock excavation" claimed at the unit price. Plaintiff's claim of $43,199.60 represents the amount the plaintiff invoiced the defendant for rock excavation plus the amount the defendant deducted from the tender price.	After work was completed, Defendants compared "trench rock" actually excavated and trench rock to be excavated" and reduced the tender price. The difference was $22,809.60.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
84	BC	2014	GC	Client	home restoration and renovation project	fixed price	written contract	Plaintiff claims $51,102.00 in extra labor charges, based on 501 hours at $85.00 per hour plus a 10% markup for-profit and 10% markup for overhead. 12. The plaintiff claims $31,670.09 in extra materials costs plus the 10% profit and 10% overhead markup and GST, for a total of $39,904.29.00. 13.plaintiff also claims $38,801.40 in extra sub-trade costs. A written contract with $373,278.00 plus GST of $18,663.90. First, $150,000 was due upon the Contract's signing with four subsequent progress payments of $46,487.55. The final payment of $37,327.80, representing the final 10%, was payable on 100% completion.	The contract was terminated, and the defendants hired another contractor to complete the remaining work. Defendants claim for the extra money they spent to complete the house restoration. Both the parties claim that neither of them terminated the contract. Defendant also counterclaims $50,158.57 overpaid in extras.
85	BC	2014	GC	Client	for renovating the House was to control the water coming into the House	unit price	Orally agreement + written letter	Plaintiff claims the balance owing for work on the House against the Defendant. An agreement was that Defendant would pay $65.00 per hour for all of Plaintiff's workers on the job, plus 15% markup on all materials and substrate invoices. The total of this invoice is $83,495.89 which includes labor 695 hours x $65" totaling $45,175.00 + $38,000 for materials and substrates. The payment paid was $60,000, so the portion unpaid was $27,670.68.	Defendant claims that there were deficiencies, and he claims the right to set off $30,000 to $32,000 for repairing the alleged deficiencies.
86	BC	2003	GC	Client	Land lot subdivision	fixed price	written contract	Plaintiff claims for the unpaid balance of $16,495.70 for the work done under contract. The original contract price of $79,715 plus GST was subsequently revised to $78,816.20.	Defendants allege that Progressive failed to complete the work within the time stipulated in the Contract and, as a result, they have suffered loss and damage related to the delay incurred in finishing the subdivision and selling the lots. Defendants also claim that Progressive failed to rectify certain deficiencies in their work.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
87	ON	2012	GC	Client	to renovate his home	fixed price	Quotation (unsigned) + Verbal Agreement	Plaintiff claims that Defendant owes $41,820.95 for materials and services supplied for contract work plus extras, after crediting completion costs. The parties did not execute a written contract. While they admit that part of the agreement is reflected in a quote, terms as to timing and extras must be reconstructed based on oral evidence and email, and other forms of communication. The parties disagree over what was included in the scope of work described in the quote.	Defendant claims $29,000.00 for deficiencies, completion costs, and other items, including daycare for his dog.
88	ON	2014	GC	Client	expand their present home	lumpsum	Quotation (unsigned) + Verbal Agreement	Plaintiff submitted that the defendants breached the contract by refusing to pay the progress payment invoice and then by refusing the plaintiff's reasonable counter-offer where Plaintiff agreed to do all ten items listed by the defendants and the money for the balance of the interim payment less the holdback to be paid following completion of those items.	Defendants' counterclaim is for damages mainly for items paid to other contractors allegedly to complete the contract or work outside the contract's scope. Their claim for living expenses for alternative accommodation and expenses for six months
89	ON	2017	GC	Client	install the fiberglass pool at the defendant's home	fixed price	written contract	The plaintiff sues the defendant for failure to pay for the installation of the pool. The total contract price is $87,014.52. The defendant has paid a total of $40,433.55. The defendant owes $46,580.97.	Defendant disputes that she entered into a contract with the corporation, the amount payable under the terms of the contract, and the plaintiff's work quality. Plaintiff testified that after the completion of the project, the defendant had several complaints
90	ON	2011	GC	Client	Renovation	fixed price	Verbal contract	The plaintiff claims the sum of $48,838.41 by way of a claim for lien according to a verbal contract involving the home's renovation or based on breach of contract or in the further alternative based on quantum doctrine *meruit*. The parties never agreed on the scope of the work and goods and services to be supplied under the verbal contract.	Defendant counterclaim claims damages for breach of contract or damages for negligence concerning the work carried out by goods and services in the amount of $156,400 and repayment of the amount of $59,400 paid to the plaintiff.

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91	ON	2016	GC	Client	Renovating at a residential property	fixed price	Signed Quotation	Plaintiff's claim against Defendant (owner) for the unpaid amount of $471,312.17.	Defendant denies the entirety of this claim, alleging that plaintiff has been paid more than enough. Defendant counterclaimed for alleged damages of $500,000 for incomplete and unauthorized work, overpayment, deficiency correction costs, and variance costs.
92	ON	2019	GC	Client	Renovation at a condominium unit	cost-plus fees	written contract	Plaintiff claims for a lien for $24,327.43 on the title to a condominium unit owned by the defendant	Deny their claim
93	ON	2014	GC	Client	to renovate the Property from a bungalow into a two-story home	unit price	Oral contract	Plaintiff claims that $9,076.06 is owed to it under its alleged contract with (subcontractor) and (owner).	Defendants raised numerous allegations of deficient work on the part of the Plaintiff. Defendant terminated the subcontract for two reasons; poor work performance and alleged theft of tools and equipment.
94	ON	2015	GC	Client	Renovation	cost-plus fees	Verbal Agreement	Plaintiff claims against the defendants for $63,000 for the balance owing on a “cost-plus” contract.	Defendants deny that this was a cost-plus contract and deny that any further funds are owing to the plaintiff. Counterclaim for the amount of $7,514 for costs incurred by them due to the plaintiff’s contract breach.
95	ON	2013	GC	Client	Renovation of building	fixed price	written contract	Conflicts about the scope of work, price, and payment arose partway through the project. Plaintiff left the job and claims payment for the materials and services it supplied to the project.	Defendants counterclaims for completion costs, deficiencies, and lost rent. Defendant claims that it is entitled to lost rent for two years because Plaintiffs failed to complete the project on time, causing the defendant to lose its prospective tenant. Defendant’s claim for lost rental income of $192,000.00

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96	ON	2017	GC	Client	to complete itemized renovations	lumpsum	Written Letter/ Purchase Order	The plaintiffs claim that the plaintiffs provided materials, supplies, labor, and equipment totaling over $340,000. The plaintiffs have brought this claim for $295,000 for breach of contract and breach of trust, plus interest at the rate of 36% per year.	Defendants take the position that the only contract agreed to be the first contract for $125,000. They did not agree to any subsequent contracts, price increases, or expansions to the work scope. Defendants claim that the plaintiffs sought to increase the contract price from $125,000 to $198,000 because the plaintiffs' barn building expert had miscalculated the original project's cost. However, the defendants did not agree to the increased price. Defendants allege that the entire $125,000 was paid to the plaintiffs, most of it in cash.
97	ON	2015	GC	Client	designed a renovation transformed into a modern apartment	fixed price	Oral agreement	Defendant paid only $62,800.00. Plaintiff claimed payment of an additional $68,017.51 for services and materials supplied to renovate the premises.	Defendant's $240,000.00 counterclaim alleges that Plaintiff overcharged him and that Plaintiff's work was deficient and incomplete. Defendant reduced his counterclaim to $50,000.00, made up of $13,500.00 for deficiencies, $28,000.00 for failure to obtain permits, and $9,000.00 for the delay.
98	QC	2006	GC	Client	Renovation work at three apartments damaged by Fire	fixed price	Signed Agreement (3 versions of Estimates submitted)	Plaintiff considered the Defendants still owed a balance of $161,319.09 for the work done plus two other additional works. Plaintiff submitted three versions of Estimates to Defendant. Moreover, Plaintiff's claim is based on the third submission totals $432,384.45 + $8,934.64 for the scaffolding. Plaintiff already received $316,000 from Defendant, leaving an amount owing of $125,319.09.	The defendant considers that the first submission is the only binding agreement between the parties. He refuses to pay anything more than $205,568 (plus taxes) except the electricity and the aluminum windows. In cross-demand, they claimed $45,893.20 as damages for loss of rentals and worked not performed and as reimbursement of overpayments. The Defendants claim $8,725 for loss of rentals.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
99	QC	2001	GC	Client	to prepare a site for the construction of a 1.5 billion-dollar aluminum smelter.	stipulated price	Written Letter	Plaintiff was awarded the contract for an amount of 33.8 million dollars. The cause of action is alleged to be, in its most crucial aspect, a violation by the Defendant of its duty to inform (soil condition), which would have caused Plaintiff severe damage during work; Plaintiff is claiming for significant changes which disrupted the orderly execution of the work, and the impacts resulting from that place.	For the defense, Plaintiff misread or ignored the important geotechnical information contained in the bidding documents, the consequence of which led Plaintiff down a path that caused all its difficulties, such that it can be said that Plaintiff was the author of its misfortunes.
100	BC	2002	GC	Client	construction of house	cost-plus fees	Standard Form CCDC (“Cost Plus”) Construction Agreement	Accounting issue: Holdback money for work done $451,519.95 (before interest) due to the alleged construction deficiencies. Under the Agreement, the plaintiff was to be paid for the “cost of the work” and a contract fee of an additional 8%. The Agreement defined “cost of the work” as the actual costs incurred by the contractor to complete the project, including the wages and benefits of workers employed directly by the contractor, the cost of all subcontracts, and the cost of all materials, products, supplies, and equipment incorporated into the work.	Defendants were left to deal with the Plaintiff in the final stages of the project. Defendants closer looked at the billings for the entire project and discovered $125,000 in questionable billings. They also discovered that several subcontractors had not been paid. Defendants became unhappier. They discovered the copper roof design and installation were defective, and there were other construction deficiencies. They refused to pay the last bill to Plaintiff and hired others to rectify the deficiencies.
101	ON	2018	GC	Client	construct a new addition on the subject property.	fixed price	written contract	Plaintiff claims the sum of $46,719.85 for breach of contract, Damage for loss of profit for $33,587.51, damages due to abrupt termination of the contract.	Defendants claims under the Consumer Protection Act. Defendants claim of fraudulent representation.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
102	ON	2004	GC	Client	excavation, shoring, and concrete work to construct the underground parking garage, foundations, and upstanding walls	stipulated price	CCDC-2	(i) Disputes arose between Plaintiff (general contractor) and Defendant (owner), eventually leading to this litigation. Plaintiff registered a lien for $724,673.83 and another Defendant (subcontractor) lien for $144,698.92. Subcontract agreement claim for deficiencies. The agreement was a fixed price of 1.88 million dollars to include the bulk excavation, shoring, and underground concrete work as described and specified in the drawings. Both parties commenced actions to enforce the liens, and Defendant defended both claims.	The defendant also counterclaims against Plaintiff for $880,000.00, of which $250,000.00 is a claim for deficiencies. The balance is for general contractual damages, including delay and additional architectural fees. A claim for deficiencies and the balance is for general contractual damages, including delay and additional architectural fees.
103	ON	2007	GC	Client	to perform specific work at their office and manufacturing facility; prefabricated buildings	cost-plus fees	written contract	Plaintiff (general contractor) performed the work pursuant to the contracts, and that the sum of $178,485.49 remains unpaid. (two separate contracts for two projects).	Defendant counterclaim that the Plaintiff failed to provide proper or sufficient supervision concerning the required work's performance. Defendant counterclaimed incurred additional expenses to remediate deficiencies and further that they lost profits to Plaintiff. As a result of Plaintiff's non-performance, the completion of the two contracts was delayed, claiming that it has lost rental income due to the delay in completion of the two contracts. Defendant also asserts that work contemplated by allowances specified in the contracts was not completed. Therefore, the value of the contract should be reduced from $651,193.71 to $578,388.14. Defendants assert they have overpaid to Plaintiff.
104	ON	2009	GC	Client	construction of Alumni Hall	stipulated price	CCDC-2	Plaintiff claims for the damages for delay and damages for amounts said to be owed to subcontractors. This amount is roughly $945,000.00 instead of the $1,493,382.40 set out in the statement of claim.	The defendant is seeking partial summary judgment according to Rule 20. By this means, the defendant seeks to dismiss the claim's component relating to the subcontractors, thus eliminating potential liability for 1.4 million dollars.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
105	AB	2014	GC	Client	to perform civil, structural, and mechanical work on a gas processing plant	cost-plus fees	Written Letter	It is clear that Plaintiff's scope of work changed over the life of the project and that the amount invoiced was substantially higher than initial estimates. The issues were when the contract was formed, its basic terms, and whether specific estimates had a contractual effect or could be considered negligently prepared.	Defendant submits Plaintiff exceeded or deviated from work authorized by the contract without timely cost information or scope change modification approval. It inflated its costs to claim a higher mark-up amount.
106	AB	2002	GC	Client	construction of pipeline, risers, and headers	unit price	written contract	Plaintiff claim for an unpaid amount which it invoiced. The defendant wanted to continue through the adverse working conditions because he did not want to delay it to avoid the wet and muddy conditions once he started the project. Plaintiff was willing to do all it could to complete this system under those conditions; however, in the end, the price tag was very high, to the point where the Defendants have simply balked at paying the cost.	The final construction project was entirely different from what the parties had contemplated in the fall of 1993. The Defendants chose not to do the work or hold the work from summer till winter to avoid wet and muddy conditions.
107	AB	2015	GC	Client	construction of a new office building	stipulated price	design-build contract	Plaintiff claims that Defendant still owes it over $1,100,000. The proposed scope of work and a total anticipated cost of $2,091,225.48 plus GST. Parties entered into a standard construction agreement called a Design-Build Stipulated Price Contract (“the Contract”). The Contract named the defendant as the owner and the plaintiff as the design-builder.	Defendant denies that it owes any remaining amount to the plaintiff and counterclaims for over $550,000 for damages from Plaintiff failing to complete the project on time and for deficiencies in the work performed.
108	BC	2003	GC	Client	Construction of house	fixed price	a brief contract	Plaintiff claims for monies it alleges are owing to it under the construction contract. Plaintiff submits that the defendants stopped denying that they authorized work or agreed to pay amounts beyond these items' contract amounts. Plaintiff submits that the defense of waiver should apply to any attempt to revisit the billings. Defendants never represented to the plaintiff that they would not require a final accounting, nor that they would not require the plaintiff to justify their obligation to pay what had been invoiced for “extras”. The plaintiff would have been entitled to stop work on the project had the invoices not been paid.	Defendants are counterclaiming for damages for delay in construction and for the cost of removing dormers installed by the plaintiff in contravention of building envelope restrictions.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
109	BC	2019	GC	Client	Construction of house and garages	unit price	standard form contract regularly used by Plaintiff (General Contractor)	Plaintiff seeks an order for the outstanding amount of $351,530 owed by Defendant for the construction. Plaintiff argues that the total cost is $925,032 due to unsubstantiated oral amendments and that the total owing is $351,530. The document only contemplated the duplex, referring to the word “house” in the contract. There were substantial oral amendments at a later stage to include a secondary dwelling, which also changed the performance's price, specifications, and time.	Defendant argues that the parties agreed to the following from the beginning of their contractual relationship: Plaintiff would build a duplex and a secondary dwelling for Defendant with the price of $150 per square foot plus GST= totaling $803,250 plus GST. The project would be completed within 150 days of the old house on the property being demolished. Defendant claim for compensation to repair the defects and said, "Not all of the Plaintiff's work was performed in a good and workmanlike manner."
110	ON	2014	GC	Client	construction	stipulated price	CCDC-2	Plaintiff's claim for damages arising from wrongful termination of the contract by the defendant. Plaintiff also claims for the unpaid amount to the sub-trades.	Defendant counterclaims for breach of contract from the plaintiff (time delay)
111	ON	2010	GC	Client	construction of a free-standing guest house	cost-plus fees	draft contract by Plaintiff (general contractor) but never signed by the defendants (owner).	Defendants instructed Plaintiff to cease work on September 8, 2006. No further work was conducted on this project by the plaintiff after that date. Plaintiff provided a draft contract to the defendants outlining his terms. However, the defendants never signed the contract. Regardless, the contractual arrangement was such that the plaintiff was to complete the construction following the architectural drawings and specifications. The defendants would pay the plaintiff on a cost-plus 20% basis. Plaintiff sue defendants under the Construction Lien Act for the balance owed $148,470.43	Defendants have counterclaimed for the sum of $288,262.92. They have alleged that the lien claim was improperly registered and therefore invalid. Defendants did not sign or agree to a contract with a definitive price. Instead, they agreed to pay the plaintiff on a cost-plus 20% basis. Defendants also allege that the plaintiff overcharged them for the work undertaken and forms part of the plaintiff’s invoices, including invoices that the defendants had paid. Defendants claim a total of $13,532.60 for damaged building materials and the cost of removing garbage and unusable building materials from the site.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
112	ON	2014	GC	Client	flooring and millwork	fixed price	Purchase order	Plaintiff claims an owed amount of $282,075.54 with interest and damages due to the contract's termination.	The defendant denies this claim asserting that Plaintiff has been overpaid for what is provided and has a counterclaim against Plaintiff for $146,337.75 due to Plaintiff's work deficiencies.
113	QC	2010	GC	Client	stonework and house construction	unit price	Written Contract	The owners refuse to pay the mason who worked on their property following a dispute over the contract's scope between the parties. The parties no longer agree on calculating the price per linear foot (lin. Ft.) Or square foot (sq. Ft.) And on certain additional work. This disagreement results in a claim for additional work, interest, a penalty, and a counterclaim.	Defendant counterclaim; $ 10,000 for legal costs incurred as a result of abusive procedures; $ 10,000 for damage to their financial reputation; $ 10,000 in punitive damages for violation of their rights under the Quebec Charter; $ 10,000 claimed for damage to his reputation in the construction and real estate industry.
114	ON	2018	GC	Client	to transform the premises into a dream home	fixed price	written letter	Several disputes arose between the parties concerning the work quality, construction delays, and payment schedules. Eventually, the plaintiff abandoned the project and registered a lien against the property. Plaintiff claimed to be owed a further $61,171.16. The project was supposed to cost $287,023.77 plus applicable taxes, and construction was supposed to occur between June and August of 2014.	Defendants contend that far from owing the plaintiff money, the plaintiff should pay damages for breach of contract as well as negligence and misrepresentation. Defendants seek reimbursement of $255,324.94 plus interest and costs. Included in this amount is the cost of completing the work and repairing deficiencies and damages for delay.
115	ON	2016	GC	Client	Renovation (change from residential to commercial)	lumpsum	written contract	Plaintiff claims unjustly enriched due to the plaintiff's services performed according to a contract against the defendant for $37,188.94 for the balance of monies outstanding under a contract. The plaintiff, therefore, claims entitlement to the compensation requested according to the principles of quantum meruit.	In his Statement of Defense and Counterclaim, Defendant asks that the plaintiff's claim be entirely dismissed. Defendant pleads in his counterclaim that he is entitled to damages arising from the plaintiff's contract breach. Defendant pleads in the further alternative that any amounts that may be found owing to the plaintiff be set off by damages owing to the defendant by the plaintiff.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
116	ON	2004	GC	Client	government projects; to convert architecturally and historically significant house into a conference center	stipulated price	written contract	Plaintiff claim for the unpaid balance from contract plus Change Orders and Extras; Delay Damages; Business Loss Damages; Breach of Trust; Punitive Damages against Defendant. Plaintiff claim against the defendant "sum of $988,858.11 for breach of contract" based on quantum meruit or unjust enrichment; and "$15 million" as damages for breach of trust, loss of reputation, under the Construction Lien Act.	Defendant counterclaims costs to complete the project and correct outstanding deficiencies.
117	ON	2007	GC	Client	to do extensive exterior stone parapet and roof renovations to a historical Ontario government building	stipulated price	CCDC-2	The plaintiff's Written Argument asserts that Plaintiff's lien claim is $419,020.45, plus a delay claim of $213,941, for a total claim of just over $630,000. Plaintiff claims for balance amount paid in Certificate #10, claims for masonry credit, claim for payment, etc.	Defendants have a counterclaim for $397,788.24. There is, in court, $39,497.50 as the balance of money paid by the defendant. If this money is returned to ORC, I believe the defendant's counterclaim would be reduced to ($397,708.24 – $39,497.50 =) $358 210.65 for Winter Heat, Scaffolding, and Hoist rental.
118	BC	2015	GC	Client	to supply materials and labor concerning the construction of a deck on the house	cost-plus fees	written agreement	Plaintiff claims against Defendants in breach of its agreement. Defendant refused or neglected to make payment to the Plaintiff for amounts owing under the agreement, despite demand. There remains due and owing to the Plaintiff for work performed the sum of $24,576.19. The amount of the plaintiff's claim of lien and costs; damages for breach of contract	Defendant counterclaim Plaintiff's breach of contract and/negligence include, but are not limited to, the following: Plaintiff overcharged for the services provided; Plaintiff carried out its work in an improper, inefficient, incompetent and untimely manner; Plaintiff abandoned the project before its completion; and
119	ON	2014	GC	Client	to carry out specific renovation work on the Property	cost-plus fees	Verbal contract	Plaintiff registered a claim for a lien on the Property's title for $175,066.04 unpaid for work done. The Plaintiff's substrates also registered claims for a lien in April 2011: in the amount of $19,662; and$11,863.	In the counterclaim, Defendants claim recovery of what they allege was an overpayment to Plaintiff for the "fair value of the work in place."

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
120	ON	2013	GC	Client	a renovation to a commercial property	fixed price	accepted quotation	Plaintiff claims it is owed the sum of $87,902.03, comprised exclusively of the balance owing for extras which it says were performed by it more than the base contract outlined in its quotation accepted by Defendant. When the actual contract was agreed between the parties, the work had expanded to 28 wells to be tied in rather than four. It was clear that the work was going to be done in spring and summer conditions unless the Defendants chose to halt the project pending drier construction conditions or chose to wait until the following winter (fall of 1994). Both parties maintained the position at trial that the accepted Quotation represented a fixed price contract.	Defendant argues that there was an oral term of the contract that no extras would be charged for unless authorized in writing by it, that the price outlined in Plaintiff's quotation was a total "upset limit." Plaintiff agreed to perform some of the claimed extras without compensation due to complaints respecting substandard workmanship. Defendant also claims set-off against Plaintiff's claim and has counterclaimed deficiencies in its work. However, it does not seek payment of any amount from Plaintiff on its counterclaim over and above the set-off claim.
121	BC	2016	GC	Client	Joining two houses	cost-plus fees	project management/construction contract	The project did not end up going as planned. There were delays, and the costs soon exceeded the budget, and the project came to a halt. Plaintiff now claims against the defendants for monies owing under its contract for work performed and materials provided to the point where work stopped. Plaintiffs had paid close to $75,000 for relocation services (not part of the contract), a further sum exceeding $400,000 on the contract, and owed another $24,000 for holdbacks on the invoices to that date.	Defendants claim, much of the work performed was grossly deficient, and the project was mismanaged by Plaintiff. The losses the defendants thereby sustained, they say, more than offset what Plaintiff claims, and the defendants, therefore, seek damages.
122	AB	2014	GC	Client & Consultant	(i) Earthwork , (ii) Consulting Engineering Services (between 2 defendants)	unit price	(i) Contract (earthwork) (ii) Contract (Engineering Service)	Plaintiff alleges in its Statement of Claim that the defendant owes $96,682.79, plus pre-judgment interest, for earthwork services.	defendant counterclaim that plaintiff breached the Contract; abandoning the work site on June 8, 2006, before work being completed; diverting clay from defendant stockpile to other locations; fraudulently billing defendant for work that had not been completed;

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
123	ON	2014	GC	Consultant	to supply cabinetry and other millwork for a training facility	fixed price	purchase order	Plaintiff claims this unpaid amount $22,450.00 plus $1,001.75 for extras for a total claim of $26,370.25.	Defendant claims set-off of $18,710.00 plus $4,556.00 plus HST for a total of $26,290.58 for deficiencies and incomplete work. Defendant argues that it is entitled to a set-off because of deficiencies in the merchandising unit manufactured and installed by Plaintiff. Defendant claims that Plaintiff is at fault because the merchandising did not fit properly into space.
124	BC	2014	GC	Insurance	construction of building	lumpsum	design-build contract	An action for recovery under an insurance policy for losses alleged to have occurred during the construction of a new 500-bed patient care facility. Plaintiff claims damages and costs in the amount of $14,952,439 as a result of the slab deflections. The Policy is a Course of Construction Insurance Policy intended to insure certain defined risks during the construction process. “ALL RISKS of direct physical loss of or damage to the property insured”; Limit of Liability clause, which states, “If any of the property insured be lost or damaged by the perils insured against, the Insurer will indemnify the Insured against the direct loss so caused”.	Insurers submit that the Policy does not cover the costs in some categories. They also take issue with the amounts claimed in different categories.
125	ON	2016	GC	Insurance	heating and mechanical work for the housing project	lumpsum	Purchase Order	Plaintiff claims unpaid invoices (the amount of $73,485.35, which is the same amount in the Statement of Claim.) concerning labor and materials supplied for heating and mechanical work for the housing project. Plaintiff claimed lien is bonded off. Nevertheless, the Defendant is bankrupt. Therefore, the second lien (The Breach of Trust Claim cites an amount of $87,611.42.) is the Defendant-bond company for breach of trust.	No counterclaim

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
126	QC	2003	GC	Insurance	supply and erection of a chemical recovery boiler	unit price	purchase order	Plaintiff dispute over the insurance coverage interchanged between two separate Purchase Orders (1 for erection and 1 for supply material).	The conclusions of C.E. in its most recently amended Declaration that was produced after the trial had been completed specify that in the Principal Action, it incurred defense costs of $4,317,089.70. The bulk of these costs - , $3,157,909.66, - were incurred after C.E. obtained a copy of the Policy in 1996 and included the lengthy trial costs. Coverage of policy.
127	BC	2004	GC	Sub	supply and installation of electrical items	fixed price	subcontract	Plaintiff sent letter "setting out a quantified claim for “contract escalation costs” and unpaid invoices." after two weeks of substantial completion. Plaintiff file for contract escalation costs and unpaid invoices. The subcontract contains no specific reference to the date for the completion of the electrical work. However, one of the preambles states that: "The Sub-Contractor has agreed with the Prime Contractor to be bound by the provisions of the Prime Contract, where applicable, including any schedules issued under the Prime Contract."	Defendant responded to Plaintiff's contract escalation costs and unpaid invoices, denying its merit, and putting forward his claim against Plaintiff for costs of delay and losses that Defendant incurred as a result of delays caused by other subcontractors. It bases its claim on Clause 8 of the subcontract. Additional equipment and tools rental cost, Additional bond
128	ON	2009	GC	Sub	design, supply, and install steelwork	fixed price	accepted bids	Plaintiff claims that the termination occurred due to numerous, significant contractual breaches, which included: No schedule was received to complete the foundations; No stamped drawings were received; Defendant had stated on May 7th and 10th that it refused to continue with the project. The cost of completion exceeded what Defendant had quoted to do the work. Plaintiff sued for the difference, alleged to be more than $500,000.00.	Defendant seeks damages of $330,440.61; a figure made up of two elements: $87,774.24 being the value of services rendered to date, plus $242,666.37, being the anticipated profit on the job. Defendant argues that Plaintiff breached the contracts by terminating them without justification. Defendant’s demands for additional money to cover rising steel prices and additional works. Defendant says that it was entitled to steel price increases as Plaintiff failed to accept its bid timely. The bid expressed for 3% price increase if not accepted immediately

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
129	ON	2014	GC	Sub	to do renovations to a housing project	fixed price	purchase order (no "construction schedule")	Plaintiff alleges that Defendant breached the fixed price contract when Defendant realized that its cost for materials was higher than expected. A dispute between the parties unfolded when Defendant pass on the anticipated material expenses to Plaintiff. Plaintiff terminates the contract. In its Statement of Claim, the Plaintiff seeks damages for breach of contract for $171,437.50, plus interest and costs.	Defendant disputes both liability and damages due to the material price higher than the contracted price (fixed price contract). The defendant then offered to complete the work for a new price of $435,700.00 plus tax, plus $25,757.00 plus tax. That was substantially higher than the $275,000.00 original contract price.
130	QC	2007	GC	Sub	construction of residential condominiums	unit price	Verbally accepted the terms	Plaintiff claims damages of $ 153,156.17 from the defendant for breach of contract; plaintiff claims damages for the hours of work that its employees had to work beyond what should have been done if the work had been completed. Plaintiff claims for financial loss due to late completion.	Deny owing to plaintiff claim of breach of contract
131	BC	2004	GC	Sub	concrete placing and finishing on several floors on a high-rise project	unit price	subcontract (not specify certain standard and specification)	Plaintiff claims the cost of $58,463.94 spent in remediation in both projects because Defendant did not meet the standard required and accepted as part of the contract.	Defendant counterclaimed for the unpaid work done. Defendant worked on 11 – 15th floors of 15th building & 4 – 14th floors of the first building and charged a total of $42,438.06 for work performed at both sites.
132	ON	2012	GC	Client	rebuilding the cottage with log construction	unit price	written contract	When his invoices were not paid in full, the plaintiff filed a lien on the property according to the Construction Lien Act (CLA) and started this action. There is no dispute about the timeliness or perfection of the lien. The defendants paid the plaintiff $110,031.10 on account of his invoices. Once these credits are taken into account, the Defendant seeks a judgment of $98,681.83 plus interest of $48,470 and late charges of $6,183.85 for a total of $153,335.68.	Defendants say the plaintiff was paid in full concerning Plaintiff's initial estimate. They complained that the Plaintiff over-billed for the work and stayed on the job longer than the initial time estimate. Defendants submit that the work was not completed within the time agreed and that it was deficient. Additional credits for repair should be granted.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
133	ON	2010	GC	Client	conversion of a restaurant to retail space for a computer store	cost-plus fees	Oral agreement/ written letter (Partial)	Plaintiff claims $26,785.00 for unpaid labor as Defendant stopped paying the claim payment.	Defendant believes that the $17,000 he paid covers all of the work and seeks a set-off for the delay, deficiencies, and incomplete work. Defendant does not dispute that the hours claimed as worked are correctly stated but maintains that it is excessive. He admits that he is satisfied with the work.
134	ON	2015	GC	Client	to do specified kitchen renovation work	fixed price	written contract	Plaintiff registered a claim for a lien concerning its work for $20,000. The Owners paid a “down payment” of $2,261. The remainder of $20,000 was described expressly as being, “Balance Due on Completion.”	Defendant counterclaims $4,761 in damages, which is composed of: $2,500 for the cost of repairing the floor; the return of the $2,261 down payment.
135	ON	2017	Sub	GC	improvements to Station	Not specified	subcontract	Plaintiff registered a lien against the Property regarding services or materials supplied to the Defendant for $603,329.01 inclusive of HST incl. Damages after Defendant terminate the subcontract work upon the dispute in rectifying defects.	Following its termination of the Contract, Defendant hired a sub-contractor to correct Plaintiff’s deficiencies and complete the Contract. They are seeking damages to complete deficiencies and the Contract for $624,684.21 plus costs and interest. The defendant has provided detailed evidence of the costs of completing the Contract ($423,805.38) and correcting the Plaintiff’s deficiencies ($115,066.86). Against those costs, Defendant has set-off the monies received from Owner for approved extras following Plaintiff’s breach ($329,793.69). The total damages claimed are $209,078.55.
136	ON	2013	Sub	Client & GC	renovations to Bradford District High School	unit price	subcontract	Plaintiff's claim against Defendant - general contractor for unpaid invoices, unpaid Extras, and back-charges which arise due to dispute over the price for extras and scope of work in the contract or not.	Defendant claims certain back-charges for work it claims were included in the contract price but was not completed and for a credit for the and legal fees.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
137	ON	2017	Sub	GC	to provide custom millwork for two homes	fixed price	Signed Quotation	(i) Plaintiff seeks summary judgment for the amount of $67,788.90, less an amount of approximately $3,000.00 for alleged deficiencies in the work that Plaintiff is prepared to concede as a matter of efficiency.	Defendants resist this summary judgment motion and claim that the case's issues require a trial to resolve. Defendant claimed for the amount to rectify the deficiencies.
138	ON	2009	Sub	GC	Excavation/cleaning	unit price / fixed price (dispute)	Verbal Agreement	The plaintiff maintained that he did not sign the contracts because there was an agreement that he was working for an hourly rate based on his rates for equipment and labor. Plaintiff billed a total of $128,761.14 to Defendant, less paid amount. Plaintiff claims the difference of $83,338.36.	By counterclaim, Defendant claims that Plaintiff failed to excavate the pond in the correct location. Defendant claims damages of $58,120.00 to relocate the pond. In addition, Defendant claims that Plaintiff damaged equipment owned by his company and that the cost of repairs to the equipment totaled $11,500.00.
139	ON	2018	Sub	Client	substantial earthworks on the site.	Not specified	Purchase Order	As a result of a payment dispute, Plaintiff walked off the job site in May 2014 and claimed the construction lien for roughly $2.4 million. The amount claimed represented monies allegedly owing to Plaintiff as well as to its sub-trades.	To clear up its title to the lands and to keep the development moving forward, the defendant paid roughly $3.1 million into court to lift the various registered liens.
140	BC	2002	Sub	Client	Demolition of buildings and removal of demolished materials.	unit price	subcontract	The demolition material contained wood and other debris that was not wood. It is the non-wood debris that has led to this lawsuit. Plaintiff's objection relates to the remedial process's costs; those costs claimed against him by Defendant for the remedial process.	The demolition material contained wood and other debris that was not wood. It is the non-wood debris that has led to this lawsuit. Defendant undertook to do the remedial work and carry out the arrangement. For that work, it claims against Plaintiff, by counterclaim. Defendant first became aware of the Whatcom problem (dumping ground) but believed it was the Plaintiff's responsibility, by contract.
141	ON	2005	Sub	Client	supply and install of tiles	unit price	Oral Contract	When the contract between general contractor and owner is terminated for delay & dispute on granite quality, Defendant had an oral agreement with the Plaintiff to continue to finish the work. Plaintiff had not been paid any more money other than the said $6,248 (deposit), so Plaintiff stopped work on May 30 or 31, when its work was 95% finished.	Defendants terminate the contract with General Contractor stating due to delay and deficiencies. Plaintiff continues the work was subcontractor, now had an oral agreement with Owner to complete the granite and tiling work. Defendant claimed to recover any of

								Plaintiff claims unpaid money for the completed work.	his $15,000 deposit from Plaintiff-General Contractor.
#	**Province**	**Year**	**Plaintiff Type**	**Defendant Type**	**Project/ Scope of Work**	**Contract Type**	**Type of Doc.**	**Plaintiff's Disputes**	**Defendant's Disputes**
142	ON	2017	Sub	Client	excavation at a multi-phased condominium development	unit price	written contract	Plaintiff conducted excavation work with a written contract for Phase I. Continue Phase II without a formal written contract; some paid invoices. The parties' relationship broke down and claimed that it is owed $217,945.74 for work done. After the verbal contract about the continuation of work on Phase Two broke down, Plaintiff brought a claim and filed a construction lien on the site.	Defendant also counterclaims against Plaintiff for $273,700.31 on the basis that Defendant was required to retain another excavating contractor to complete the excavating work that Plaintiff was required to perform. Defendant claims that the plaintiff failed to properly preserve and perfect its lien according to the Construction Lien provisions.
143	ON	2012	Sub	Client	installation of the framing necessary for the Construction of his 5300 sq. ft. house	lumpsum	Written Contract	Plaintiff did not get paid anything for his work. However, he agreed he did receive a cheque for the work and material he had to undo partially and complete with quiet rock as an extra. Total Plaintiff claimed $ 87,520.25 plus GST. There is no doubt that when Plaintiff ceased work on this project, there was unfinished work within the scope of its contract which it did not complete	Back charge: The amount claimed by the defendant is $21,525 to remedy the mound problem. The interest claim is calculated on the full mortgage amount that is well beyond the amount posted using the mortgage interest rate, for $15,273.98.
144	ON	2007	Sub	Client	student residential development project	fixed price	written contract	Plaintiff is mainly claiming for the cost of its unrecovered over-head during the period that the Project was delayed. Additional Costs to Shoring + Invoice Adjustments + Extras + Standby Charges + cost under-recovered extended overhead costs during the period of delay.	Defendant counterclaims for the cost of completing and/or repairing services installed by Plaintiff. The defendant counterclaims for $671,438.42 to repair or complete the work it states was covered under the plaintiff's contract.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
145	ON	2017	Sub	Client	Renovating a two-story building	lumpsum	Signed Quotation	The plaintiff is a supplier of windows and doors. It registered a claim for a lien on the title to the property for $11,770 and sought judgment for that amount. There are two areas of dispute concerning the Contract. (i) the Owners allege that the Contract required that the patio door be triple-paned. Plaintiff disagrees, asserting that the contract expressly stated that the patio door would be double-paned.	Defendant denies the plaintiff's claim and asserts a counterclaim for damages totaling $21,238.89. Plaintiff did not do the masonry work for the two openings. Defendant stopped the work as a result. Plaintiff installed plywood in the openings as a temporary measure. Defendant sent emails complaining about deficiencies, including alleged improper windows. Defendant arranged to have the masonry work done by a mason. Defendant presented a list of 21 alleged deficiencies, which included a replacement of the windows and the patio door assembly
146	ON	2016	Sub	Client	renovation work (painting)	unit price	No contract between plaintiff & defendant	(i) Appellant appeals from the decision at the trial of Small Claims Court by which the Appellant's claim against Defendant is the condominium project administrator for unjust enrichment (i.e., enrichment and a corresponding deprivation) was dismissed with costs of $2,500.00 to YCC 97. Plaintiff (Supplier) claims against Defendant (Owner) for the money for the material supplied to the project. There was no evidence before the trial judge that the holdback of 10% had been disposed of in any manner or that it was being held in respect of alleged deficiencies.	No, defend
147	ON	2013	Sub	GC	repairs to the property at 777 Bay Street, Toronto	fixed price	subcontract (prime contract CCDC-2)	The owner directed the Defendant (general contractor) and, in turn, the Plaintiff (subcontractor) to stop most of the work under a fixed price contract. Plaintiff's position is that Defendant breached the contract when it purported to reduce work scope and change the price unilaterally. Also, Plaintiff did not get paid from Defendant for the work done under the contract.	Defendant counterclaimed for the damage cost due to Plaintiff's lack of incorporation to provide the supporting documents for the substantial part change to recover the Owner's cost.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
148	BC	2010	Sub	GC	asbestos flooring removal work done	unit price	Signed Quotation	Plaintiff claims judgment for $313,793.55 (based on quantum meruit) for asbestos flooring removal work done for the defendant. Plaintiff says that the contract provided that it would be paid $37.45 per square foot of flooring removed and that it removed 8,379 square feet of flooring.	Defendant does not deny that the work was done. Defendant alleges there was no contract to do all of the work. In the absence of a contract, Defendant should pay the Plaintiff on a quantum meruit basis. Defendant argues that on a quantum meruit basis, the high-water mark of the Plaintiff's claim is $76,180; the value of the work on the most generous estimate is far lower than the alleged contract price.
149	ON	2012	Sub	GC	Demolition and crush concrete to stone	stipulated price	CCDC-2	Plaintiff decided not to continue with the contract because the defendant had not paid the fourth progress draw. Plaintiff feared that Damaris would not pay. Both parties dispute over the size of the crushing stone, following which payment dispute.	Defendant claims $50,400.00 as a back charge for removing asphalt + $104,467.13 to crush concrete on site to ¾" minus + $7,875.06 to demolish and remove the remaining concrete.
150	ON	2010	Sub	GC	interior refurbishing of a twenty-story student residence	Not specified	Purchase Order (prime contract CCDC-2)	Plaintiff seeks $26,531.31 owed to it under the base contract with Defendant and $27,693.40 for work performed by it, which was extra to the base contract, for a total of $54,224.71. By the terms of the contract, Plaintiff understood that it had to complete its work by mid-August before the students returned to start a new academic year. A "big change in the scope" causes a delay in the schedule.	Defendant claims that Plaintiff did not complete all of its work under the base contract. It also claims that it is not contractually obliged to pay Plaintiff for any extra work. Finally, it claims that it was required to hire other painters and laborers to complete the Plaintiff's work, including deficiencies, at the cost of $37,087.14. In addition to other back charges, this amount should be deducted from any amount owing to the Plaintiff.
151	ON	2015	Sub	GC	to rehabilitate the Bluewater Bridge	Not specified	Written Letter	Plaintiff claims for the unpaid balance said to be outstanding on its sub-contract with Defendant, as well as damages for delay, and alternative claims for relief including breach of contract damages and quantum meruit compensation, together with claims for interest and costs.	Defendant claimed damages from Plaintiff for its alleged delay, breach of contract, negligence, and negligent misrepresentation.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
152	ON	2015	Sub	GC	sheet vinyl flooring in building in the McCausland Hospital Long Term Care Facility	unit price	CCA-1	The plaintiff claims monies are due not only directly relating to the balance on the contract but also for unpaid extra work performed, unpaid extra materials purchased by the plaintiff, and extra expenses incurred due to uneven base floor. Plaintiff alleged that the fault and breach lay with the defendant, as the defendant did not provide the plaintiff with a floor structure suitable to accept the plaintiff's flooring, so the plaintiff did not complete the work. The plaintiff was concerned about his warranty.	Defendant alleged that plaintiff stopped work on the project without a valid reason. Counterclaims for money it expended to hire another flooring subcontractor to complete the work, for materials that it had to purchase to complete that work. For additional expenses, it was incurred to ensure that the work was completed.
153	ON	2019	Sub	GC	revitalization of the exterior of 380 Murray Street, Ottawa property	stipulated price	CCDC-2	Plaintiff alleged that there is no genuine issue requiring a Defendant's trial because a slight schedule delay near the end of the contract cause the prime contract terminated by the owner. Plaintiff refuse. Defendant alleged their third-party claim against Plaintiff. Plaintiff also billed approved extras in the sum of over $312,000 according to 20 Change Orders.	There is some dispute about the cause of the delays that impacted the Plaintiff's activities, and the finger is pointed at several players in this project. Defendant alleges that the Owner and its consultants, in part, caused the delay, as they, among other things, failed to provide information on time, issued several change orders, and delayed the issuance of bid documents.
154	AB	2000	Sub	GC	crushing and sorting of materials for asphalt, at highway construction	unit price	prime contract	Plaintiff claims that it has not been paid for particular quantities of crushed material, including some material called "extra work" completed at the defendant's alleged request.	The general contractor counterclaims. It alleges the subcontractor failed to provide, in a timely manner, the quality of materials that it agreed to supply.
155	ON	2014	Sub	GC	to build on the Property a building to house his office, showroom, and equipment service area	lumpsum	written contract	Plaintiff claims the sum of $84,567.78 for services provided to the defendant. Both trial parties testified that they agreed to alter the scope of work from what was described in the proposal and agreed to a price of $95,000. None of the changes to the scope of work were reduced to writing. They failed to document their dealings fully.	Defendant counterclaims for the sum of $42,074.76 that it paid to either complete the work that Plaintiff did not complete or to repair the Plaintiff's deficient work. Defendant's request he did a walk through to determine the outstanding items as compared to the agreed scope of work. Eventually, he prepared a list that detailed the unfinished work and sent an email to Plaintiff.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
156	ON	2015	Sub	GC	to build the TTC Wheel-Trans Transportation Office	unit price	subcontract	Plaintiff registered a construction lien for $414,237.69 as instrument AT3223759. The Provincial subsequently reduced the amount of its lien claim to $181,901.29.	Defendant seeks an order for discharging plaintiff's lien claim as expired; damages, including bonding costs.
157	ON	2006	Sub	GC	pre-engineered steel building to house a sawmill	lumpsum	purchase order	The plaintiff claims damages for work outside the contract's scope, for extended duration and winter work, for a total of $526,293.89.	Defendant contends this was a lump sum contract, which required the plaintiff to build what was designed for the agreed-upon price. Jones says nothing is due to the plaintiff. Including GST, the defendant retains a holdback of $114,294.83.
158	ON	2005	Sub	GC	for the construction of a retail grocery store	lumpsum	Purchase order	Plaintiff submitted a bid for $288,294, and Defendant accepted Plaintiff's bid at $285,000. *The parties could not agree on the terms of a more formalized contract*. As a result, Plaintiff claimed additional monies for many extras claimed for work not part of its agreement, and Defendant counter-claimed for monies it paid to third parties because of Plaintiff's delays.	Defendant counter-claimed for monies it paid to third parties because of Plaintiff's delays.
159	ON	2005	Sub	GC	to supply labor and material for the masonry work for the new Courtice Catholic Secondary School project	stipulated price	Subcontract	Plaintiff claim registered a Claim for Lien in the amount of $318,463.15 against the title to the lands improved by the project and thereafter commenced the within action against Defendant and the owner of the lands (the claim against the latter later discontinued) to perfect the Lien. Plaintiff denies the existence of any valid grounds for the termination of its performance of the sub-contract and disputes responsibility for any costs arising for replacement work in consequence of the delay in completion of work.	Claim for Lien was vacated according to a court order after Defendant posted bond for $368,463.13 (inclusive of $50,000.00 as security for costs). Defendant's statement of defense and counter-claim herein sought claims for reimbursement from Plaintiff, including a sum in excess of $188,000.00 in "direct costs" to complete the project, such sum being in addition and in excess of the sub-contract price and another $242,000.00 in "impact costs" that is, costs for winter heating, extra equipment and facilities, and security expenditures incurred during the delay in completion of the masonry work.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
160	ON	2007	Sub	GC	to construct a warehouse and office building	fixed price	written contract (with the scope of work and the price but silent on the payment method and work schedule)	Plaintiff claims $59,893 for the value of its labor and materials. Defendant says that it is not liable to Plaintiff or that Plaintiff breached the contract by walking off the job. Plaintiff left its materials at the site, despite its threat to remove everything. This meant that Plaintiff's completed work remained in place, and also, the Plaintiff's uninstalled supplies were left on site. The contract indicates the scope of work and the price. *It is silent on the issues of payment terms and work schedules*.	Defendant treated the contract as terminated and obtained quotations for completing the project.
161	AB	2011	Sub	GC	to repair the breached dam / to construct the spillway	unit price	subcontract	The plaintiff claims it was delayed on the job and entitled to payment for extras to the job and to be paid for all the concrete poured. Prime Contract between Owner and General Contractor (Defendant) is to pay only for the volume of concrete as measured and required by the contract documents. However, Plaintiff alleged that the subcontract's terms do not incorporate that measurement from the prime contract, and payment under the terms of the subcontract should be made based on the amount of the concrete actually delivered and poured into the spillway.	Defendant claims expenses to complete the work after the plaintiff left the Jobsite and fix deficiencies. It also looks to pass on deductions made under the prime contract, as the concrete work did not meet all the specifications.
162	AB	2016	Sub	GC	material and labor supply	stipulated price	subcontract	Plaintiff entered into four separate subcontracts and three separate purchase orders with Defendant relating to the supply and erection of scaffolding (same basic format subcontracts). After payments on all of the subcontracts and purchase orders fell significantly into arrears, Plaintiff filed Lien #1, claiming a total owed to it of $2,996,050.04.	No counterclaim

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
163	BC	2003	Sub	GC	concrete forming and finishing for 13 story commercial office tower	fixed price	subcontract	Plaintiff essentially complains that Defendant breached critical terms of the subcontract regarding the phasing and spacing of site excavation and that this led Plaintiff to incur labor and material costs some $1.6 million higher than its original budget. Plaintiff sues for this amount and the balance of the contract price - a figure slightly more than $200,000.	Defendant counterclaims for so-called back charges as a set-off against the balance of the contract price admittedly owed to Plaintiff. Coincidentally, the back charges (costs incurred by Defendant through the alleged fault or neglect of the Plaintiff and its account under the subcontract) roughly equal the sum remaining due to the Plaintiff under the subcontract.
164	ON	2018	Sub	GC	construction of an elementary school	unit price	subcontract	Plaintiff and Defendant got into a dispute about whether and to what extent the Plaintiff had completed the work. Plaintiff argues that despite complications, its work was ultimately certified as 100% complete by the architect. However, Defendant defaulted on payment, prompting the Plaintiff to launch a construction lien claim. Contract's outstanding balance of $152,384.33.	Defendant claimed damages of $450,000.00 to complete work and remedy deficiencies. At trial, it took the position that the cost was $211,578.97, including labor and materials.
165	ON	2017	Sub	GC	construction of the Credit Valley No. 2 Secondary School	lumpsum	Purchase Order	Plaintiff commences the action against the defendant seeking payment for work performed pursuant to a subcontract as the defendant had failed to pay the sum of $282,171.67 in breach of the contract. The subcontractor seeks payment for its services. The response is that the work was either deficient or was not completed according to the contract.	The counterclaim seeks damages of $460,851.59 for Plaintiff's alleged failure to abide by its contractual obligations requiring Defendant to incur costs to replace and complete Plaintiff's scope of work and rectify deficiencies.
166	ON	2019	Sub	GC	to construct Maintenance and Storage Facility	unit price	subcontract	Defendant terminated the subcontract with Plaintiff. Plaintiff claim for in the amount of $1,581,508 and added a claim of $1,695,000 in damages. Another sub-contractor, Plaintiff, claims for a holdback, totaling $207,473.82 against Defendant.	The defendant defended the Plaintiff's action and asserted a counterclaim of $5,620,008.86. Defendant claims a back-charge of $648,835.93 for its costs to correct this deficiency. Subcontract with Plaintiff is terminated for these reasons; manpower and production on-site, namely the Plaintiff's failure to respect the overall project schedule, the failure to pay workers, the failure to pay subcontractors and

suppliers, and the failure to provide project management.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
167	ON	2015	Sub	GC	construction of the Brampton GO Station	fixed price	subcontract	Plaintiff is seeking summary Judgement "dismissal of Defendant's Counterclaim"; "Pre- and post-judgment interest payable on the Plaintiff's Judgement"; Plaintiff served and filed its Statement of Claim in December 2009 seeking payment of $471,227.70 plus interest and costs. Plaintiff completed the contract works but was not paid its final invoice for the work on the Project. Seeking payment of $471,227.70 plus interest and costs.	Plaintiff failed to perform its work in a timely and efficient manner and delayed Defendant's work performance. As a result of the Plaintiff's delays and will incur liquidated damages claims that will equal or exceed the sums otherwise payable to the Plaintiff. The damages for the delay were to be “Head Office Overhead and Profits” damages of $988,906.38 and “Site Establishment Costs” of $300,155.02.
168	ON	2018	Sub	GC	Two high-end residential condominium projects	fixed price	subcontracts	Defendant stopped paying the invoices submitted by the plaintiff for two projects (with two separate contracts) when Owner terminated the Prime Contract with the Defendant. The amounts are owing in respect of the construction services and materials supplied for both condo projects. The dispute is over the quantum.	Defendant asserts a counterclaim and a right to set off for delay and damages resulting from work Defendant says it was required to complete in order to protect and repair the flooring Plaintiff installed.
169	ON	2012	Sub	GC	Equipment, labor and material supply to a project	unit price	no signed written contract	The plaintiff claimed the sum of $164,686.46, interest and costs and in default of payment of the amount claimed that all the estate. The claim is based on an alleged agreement between plaintiff and defendant.	Defendant counterclaims plaintiff breached the written agreement in a number of ways, and that as a consequence of uncompleted work and deficiencies and the breaches of the agreement no monies are owing to the plaintiff—counterclaim for damages of $150,000.00 plus interest and costs. The damages are for the cost of completion of the plaintiff’s work and the rectification of deficiencies as well as expenses and costs based on the plaintiff’s alleged delay in completing its work.

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
170	ON	2016	Sub	GC	Painting services	unit price	signed tender documents	Plaintiff performed a number of painting tasks and billed Defendant $21,339.95 for his services. Defendant paid only a portion of this amount, leaving $14,839.95 unpaid. While there is some disagreement regarding the amount and timing of the work done.	Defendant would not have paid the final installment to Plaintiff unless he was satisfied that the project was essentially complete. (defective works)
171	BC	2005	Sub	GC & Client	supplying and erection of structural steel	stipulated price	Subcontract (prime contract Design-Built)	Plaintiff's claim of lien at $1,145,031.86 plus taxes and interest. That sum comprises the holdback amount referred to above, the last progress draw that remains unpaid, and a further balance of $816,666.76 for claimed damages for delay and extras to the contract. When the project manager issued the certificate of completion on December 13, 2004, there were a number of progress draws that remained unpaid.	Defendants do not dispute the work done and amount claim, Defendant, resist payment of the two amounts because it has claimed back against Plaintiff for deficiencies and damages for delay. It has pleaded in a counterclaim as a set-off against the Plaintiff's claims.
172	ON	2016	Sub	GC & Client	to design and construct a new temple building	fixed price	subcontract (prime contract CCDC-2)	Trial parties execute a CCDC2 stipulated price contract for the fixed price of $2,588,566.00 plus HST. Plaintiff discovered that the structural drawings prepared by the Project's structural engineer were not consistent with the Project's architectural drawings. Plaintiff claims that it is entitled to charge extra for additional structural steel required to reconcile these differences. The third invoice was not paid; the plaintiff refused to supply the next shipment unless it was paid. Plaintiff left the job for non-payment and claim $153,411.663 for services and materials supplied or construction lien remedies against the property.	The defendant claims that it was terminated because of Plaintiff's breach of contract and holds Plaintiff is responsible for Defendant's loss in opportunity and recoup its losses from the steel subcontract at a later stage of the general contractor would have provided greater profit margins for the general contractor. Defendant counterclaims for deficiencies and losses but failed to provide evidence of the deficiencies and losses claimed.
173	ON	2015	Sub	GC & Client	to build a new warehouse	unit price	signed Bid Form with hand-written Lead Letter	The defendant did not pay Plaintiff the amount it claimed for its work from September to November inclusive. Plaintiff states that it suffered various losses, including productivity due to delay in the project. Plaintiff disputes on length of the delay were 111 days instead of 104 days. Plaintiff claim that it suffered various losses, including productivity.	The defendant agrees that there was some loss of productivity but does not agree on the Plaintiff's amount claimed and terminated the contract for breached its contract by failing to rectify deficiencies and by abandoning the project. Counterclaims for $500,000. It alleges that the cost to complete the outstanding work was $173,595, and

									the cost to rectify its deficiencies was $246,595.
#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
174	ON	2008	Sub	GC & Client	hardwood flooring contract in a house	Not specified	Signed Quotation	Plaintiff claims $6,856.41 as the balance due to a hardwood flooring contract against Defendant, the house owner.	Defendant defendants initially counterclaimed for $50,000.00 for the cost to correct deficiencies and for damages for delay in selling the property.
175	ON	2003	Sub	Insurance	to construct a Diagnostic and Treatment Addiction to an Electrical Substation	unit price	Subcontract consist of [purchase order + Schedule A + Appendix B (amendment of this agreement)]	Plaintiff claims to be entitled to judgment under the Labor and Materials Payment Bond (L&M Bond). For Unpaid balance, different in Architect certified payments amount, and unpaid Extras.	The defendant issued both a Performance Bond (which is not relevant in these proceedings) and a Labor and Materials Payment Bond. Plaintiff claims to be entitled to judgment under the terms of the L&M Bond.
176	ON	2014	Sub-sub	Sub	Three projects	unit price	Multiple projects	The plaintiff had commenced this action against the defendants for breach of trust (not having an accounting of trust funds for each project), and breach of contract (claim for outstanding payments) relative to the three projects.	The defendants plead that there were deficiencies in the plaintiff's work; work contracted for was not performed. In some instances, because the contracts were varied to delete certain specifications, there should be credits due to the defendants, as some work was not necessary.
177	QC	2009	Sub	Sub-Sub	renovation project	fixed price	subcontract	Plaintiff -Subcontractor, subcontracted with Defendant for the execution of the ventilation work, fixed price $ 1,970,000 plus taxes, for a total of $ 2,244,913.50. The delay in the planned installation of silencers integrated into ventilation ducts gives rise to this dispute, which brings together the contractor responsible for their installation, their supplier, their manufacturer, and the engineering firm assigned to this construction project. Plaintiff claims as damages for $ 331,173.76 from the principal defendant.	The defendant in guarantee to indemnify the Plaintiff

#	Province	Year	Plaintiff Type	Defendant Type	Project/ Scope of Work	Contract Type	Type of Doc.	Plaintiff's Disputes	Defendant's Disputes
178	ON	2014	Sub-sub	Sub	supply cranes & operators to hoist the precast panels at the new courthouse	unit price	Orally and Series of Correspondents	The defendant was in arrears of payment to Plaintiff. On that date, Plaintiff refused to continue to provide hosting services to Defendant. The contract between trial parties was made in part orally and partly by a series of correspondence and documents.	The defendant was in arrears of payment to Plaintiff. On that date, Plaintiff refused to continue to provide hosting services to Defendant. At that time, 30 panels are remaining to hoist.