

*An Investigation of Change to Key Provisions in
the AIA A201 and its Impact on Perceptions of the
Value-added Benefit of the Design Professional during
Construction*

Roxene M. Thompson

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Committee:

M. C. Vorster, Chair (CE&M)

Y. J. Beliveau (BC)

J. M. de la Garza (CE&M)

J. K. Lowe, Jr. (CE&M/Attorney/PE)

A. D. Songer (CE&M)

E. M. Van Aken (ISE)

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Virginia Polytechnic Institute and State University
Blacksburg, Virginia U.S.A.

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Abstract

The general conditions of contract play a very important role in the dynamics of the construction phase. The general conditions of contract outline the roles, rights, and obligations of the contracting parties during the construction phase of a project. Standard contracts, like AIA A201, are being periodically revised and are becoming more cumbersome over time. The purpose and expectations of the revisions of the contract are not always clearly defined in literature or in practice. Oftentimes, there are conflicts between the parties' interpretation of the general conditions and between the required administrative practices obligatory by the general conditions during the construction phase, thus impacting the contractual relationships between owners, architect/design professionals, and general contractors. The increasing complexity and size of projects, the multiple-contract interfaces, and the changing times have transformed construction practices and contractual relationships. The three-phase methodology of this dissertation research set out to advance the understanding of change in the AIA A201 and the impact change has had on the value-added benefit of the design professional during the construction phase and contract administration on a project. The results of this research revealed the following primary conclusions: changes to various provisions pertaining to the key provisions have resulted in the Architect assuming less responsibility during the construction phase of a project; changes to the AIA A201 provision concerning the key provisions have not increased the value of the Architect's performance of contract administration services during the construction phase of a project; with regard to the key provisions, Owners or Owners' representatives perceive the value of the Architect's contract administration services during construction have decreased in recent years. In Phase I, this research identified the key contract provisions, which influence the function of the design professional performed in contract administration during construction. This investigation identified that change exists in key provisions over time and that change may have an influence on the function performed by the design professional during construction and contract administration. Subsequently, in Phase II, this research investigated the effect that change has had on the function performed by the design professional. The respective substantive changes to each provision that may have had a material effect on the function of the design professional were identified and these key provisions were thus studied further. Then, whether or not changes made to key provisions of AIA A201 have had a material effect on the function performed by the architect/design professional during the construction phase and contract administration was examined in Phase III. Ultimately, the research led to an enhanced knowledge of the owner-perceived value-added benefit by the design professional during the construction phase of a project. The practical use of the AIA A201 and its future editions has an influence on improved performance and better working relationships, which ultimately leads to improved constructed projects. The conclusions to this research study have demonstrated that changes made to key provisions of AIA A201 from 1951 to 1997 have diminished the role of the architect. Changes to key provisions have had a material effect on the construction phase, contract administration, and the function performed by the architect/design professional during the construction phase of a project. Before one can make effective changes to improve contractual and working relationships, the change must be identified for the purpose of supporting the industry's efforts to reduce adversarial relations, balance risk, and control schedule and cost, impact the contractual relationships and the value-added benefit of the contractual parties. This dissertation research successfully provided an understanding of the process used and the impact of change in the general conditions of contracts. As such, the knowledge gained from this research illuminated the necessary considerations of change and its impacts on the future development of contracts and their revisions in efforts to create better documents, not to just create bigger documents.

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1 INTRODUCTION

This chapter is an introduction to this dissertation and its research project. It provides background and purpose statements. The problem statement is presented, as well as the research questions. The hypotheses, the variables, and the objectives are also identified. The scope of the research and an outline of the dissertation are also provided.

1.1 BACKGROUND

The general conditions of contract play a very important role in the dynamics of the construction phase. In general, they are as significant to the management and progress of construction projects and the profitability of the construction industry, as are accurate schedules, reliable equipment, and quality materials. Thus, in providing a quality project within budget, on time, and under a safe working environment, the general conditions are looked upon to delineate the roles, rights, and obligations of contracting parties during the construction phase.

A primary performance goal during the construction phase is to provide high-quality structures in a short amount of time and at a low cost. Clark (1993) contends that effective contract administration and project management, leading to improved performance and a successful project, directs “a trichotomy of authority and responsibility in the customary design and construction relationships.” (Clark 1993, p. 2) In the construction industry, the trichotomy is commonly accepted to be the contractual relationships of the owner, contractor, and design professional, i.e. architect and engineer.

The contractual relationship is formed by the arrangement of a contract. The contract defines for the construction parties the baseline of understanding of the offer, acceptance, and consideration agreed upon for a project. Overall, general conditions of contract include provisions pertaining to many issues, particularly: defining roles, rights, responsibility, accountability, and authorities. “Experience has taught us that responsibilities without authorities is a dangerous situation in which to find oneself, and also that with authority there is associated responsibility.” (Clark 1993, p. 7)

The American Institute of Architects’ General Conditions of the Contract for Construction (AIA A201) (Chapter 2.6 provides a history of AIA A201 document) is considered the most widely used standard contract documents in the U.S. construction industry. (Bartholomew 1998, Sweet, et al) Standard contracts, like AIA A201, are being periodically revised and are becoming more cumbersome over time. For instance, AIA A201 has been referred to as “a monstrous 24-page printed standard contract.” (Sweet 1997, p. 191) The purpose and expectations of the revisions of the contract documents are not always clearly defined in literature or in practice. Some changes to the general conditions have been made, which do not advance the performance goals for a successful project, but rather react to negative experiences. Oftentimes, there are conflicts between the parties’ interpretation of the general conditions and between the required administrative practices required by the general conditions during the construction phase, thus impacting the contractual relationships within the trichotomy. Thus, changes in provisions of contract documents (including the AIA A201) have not resulted in a significant reduction of

adversarial relationships and greater improvements in the contractual working relationships during the construction phase.

Construction is an unstable business with a high degree of risk. The increasing complexity and size of projects, the multiple-contract interfaces, and the changing times have transformed construction practices and contractual relationships. Typically, a project is initiated by an owner who provides the site, specifies what is to be built, and pays for the completed project. As the owner is the primary benefactor of the completion of the project, “the larger the scale, the longer the period of construction, and the greater the risk.” (Sweet 1997, p. 2)

Regarding the recent edition of the AIA A201, Bundschuh and Pavloff (1999) point out that the owner’s needs were not at the forefront or highly considered when the AIA prepared the 1997 edition.

The “owners’ concerns were not heard as loudly or clearly due to the absence of a single association that could speak on their behalf.” (Budschuh and Pavloff 1999, p. 46)

As a consequence of similar and shared sentiments, various professional organizations have been formed and are now publishing their own documents to be used in preparing contracts for design and construction services (Chapter 2.7 provides a brief discussion of industry organizations and their respective contracts). There are now owner-organizations, recently formed, that hold the belief that the changes in AIA A201 have diminished the contractual relationship between the owner and the design professional (i.e. architect or engineer). “The role of the architect has shrunk so much to avoid the legal hazards of practice that many owners are dismayed.” (Korman 2000, p. 212) Accordingly, it appears that standard general conditions of contracts have been created and developed by various organizations, as a reaction to evolutionary changes in the provisions of the widely used AIA A201.

Hence, there is the common perception that the changes in the general conditions are increasingly protecting a specific constituency by loading risk on one party versus protecting the process by which successful construction projects can be achieved. With this background, this research study investigates the changes that have occurred in the evolution of general conditions of AIA A201 and how the changes affect the function of the design professional (specifically the architect), leading to the current owner-perceived value-added benefit of the design professional during the construction phase.

1.2 PURPOSE STATEMENT

AIA declares that AIA A201 is a culmination “of effort to create a document that can be used on virtually every type of construction projects.” (e-architect 1998) On the other hand, others contend that AIA standard agreements “can be read to either directly benefit the architect or diminish his or her responsibilities.” (Cook and Paulk 1995, p. 22) Cook and Paulk argue that AIA contract language

“like ‘for approval by the owner,’ and provisions stating that public owners agree to ‘designate a representative authorized to act on the owner’s behalf,’ and to ‘render decisions in a timely manner pertaining to documents submitted by the architect,’ can, taken as a whole, serve to lessen the architect’s liability for errors and omissions in the plans and specification.” (Cook and Paulk 1995, p. 22)

As described in Chapter 2.7, the existence of certain organizations and their respective contract documents is in response to the evolution of, and/or incremental changes within, the AIA published documents. For example, the Construction Owner Association of America (COAA) was founded in 1994 to act as a focal point and voice for the interests of owners in construction. COAA's mission is "to provide leadership in dealing with the resources for quality construction in a spirit of fairness and with dedication to the advancement of what is best for society." (www.coaa.org) Also, there is the Associated Owners and Developers (AOD) organization, which was founded by Harvey L. Kornbluh in 1994. Its mission is "dedicated to the needs of its owner/developer members as it promotes participation and cooperation among the individuals and organizations who support the design, development, and construction process." (www.constructionsite.net/aod)

There appears to be the belief that there is a weakening of the responsibility of the architect that does not serve the owner well. Therefore, these constituents contend that during construction, it is important that contracts contain provisions ensuring the protection of owners, the benefactor of the construction project and the one who pays. As for an organization, like COAA, "The authors of the new model contracts are zealous in their advocacy of the owner's interests... As an association representing the customer who should be the central focus of every construction project, we believe COAA should be heard." (Korman 2000, p. 212) As the incremental changes to the AIA documents are made, the evolution of the role of the architect appears to organizations like COAA and AOD as diminished, less responsible, and less accountable.

No longer simply following the lead of the AIA, owners seem to be questioning the value of the design professional, and the tone and path of the AIA A201, which has fermented their discontent and desire to create their own contracts. Thus, the creation of new contracts are meant to "restore architects to the role of master builders by more clearly detailing what designers do and by holding them to a standard of performance." (Korman 2000, p. 212) Furthermore, the new contracts created by owner organizations are meant to send a different message than is supposed by the incremental changes in the evolution of the AIA documents: "the message [is] contained in the new model contracts—that designers must be held accountable for their performance." (Korman 2000, p. 212) This research examined the changes in the AIA A201, considered a leading industry contract document and investigated whether or not the changes that have occurred over time to AIA A201 has distanced the owners from the function of the design professional (like the architect) as a valued and major player in the construction phase.

There needs to be an understanding of the process used to make changes and the impact of those changes in the general conditions of contracts before one can make effective changes to improve contractual and working relationships during construction. The purpose of this study was to advance the understanding of change in the AIA A201 and the impact change has had on the owner's perception of the value-added benefit of the design professional. This research identified the key contract provisions, which influence the function of the design professional performed in contract administration during construction. Subsequently, the effect that change has had or not had on the function performed by the

design professional was investigated. Ultimately, the research led to an enhanced knowledge of the owner-perceived value-added benefit offered by the design professional during construction.

1.3 PROBLEM STATEMENT

As discussed in Chapter 1.1, contract documents play a paramount role in defining the rules by which the construction industry operates. The construction industry's rules, players, customs, and practices have evolved over time in response to changes in the industry. As suggested by the various editions of AIA A201, the process of making incremental changes to AIA A201 occurred due, in part, to these changing rules, players, customs, and practices.

To provide a general illustration of the effect of change on a contract in the construction industry, consider the Fédération Internationale des Ingénieurs-Conseils (FIDIC) contract. Amendments were introduced in the 1992 fourth edition of the FIDIC form of contract, also known as the Red Book. Some of these amendments were directed toward a more uniform style of drafting, but others were of a more substantive nature, either adding to or changing the meaning of the relevant clauses of the contract. Bunni (1997) declares that,

“Employers [Owners] are often tempted to make changes in the Red Book before using it as the Conditions of Contract for a project they promote. They do so in an attempt to reduce their exposure to some of the financial risks inherent in a construction contract. Consulting engineers have also sometimes attempted to amend the Red Book in response to a bad experience in a previous case.” (Bunni 1997, p. 109)

Akin to assertions in AIA documents, Bunni goes on to explain that throughout the evolution of the FIDIC form of contract, some changes were made to resolve a particular, real, or expected conflict, while others were made simply to shift the balance of risk allocation. Under certain circumstances, “some of the essential features of the Red Book...were sacrificed, resulting in conflict between the intention of the document and the changed wording.” (Bunni 1997, p. 110)

Likewise, the AIA Documents Task Force asserts that incremental changes to the AIA A201 from one contract edition to another are required to improve clarity of the context of the contract clause intent, to reconcile the document with industry practice and use, to provide professionals with a stronger defensive shielding in anticipation of claims or conflicts, and to address the construed interpretation by the courts. Yet, in making incremental changes to the provisions of the general conditions, the problem is that many industry professionals believe that AIA A201 “can be read to either directly benefit the architect or diminish his or her responsibilities.” (Cook and Paulk 1995, p. 22) And, as stated in Chapter 1.1, the changes that have occurred have not resulted in the significant reduction of adversarial relationships and greater improvements in the contractual working relationships necessary to achieve the industry's satisfactory performance goals (a quality project within budget, on time, and under a safe working environment). Hence, change in key provisions in AIA A201 lends itself to an investigation of the effect change has had on the function and value-added benefit by the design professional during the construction phase: is the construction industry developing better contracts and improving contractual relationships (particularly, between the owner and design professional); is the construction industry

improving the way business is done in construction practice; or, is the construction industry simply just developing a bigger and more complex monstrosity of documents.

1.4 QUESTIONS

As a consequence of the background, purpose, and problem statement for this study, the following broad questions were contemplated:

- Is the intent of some of these changes to protect the architect from liability by reducing the architect's responsibilities?
- How do the changes affect the performance of the contractual parties in the administration of the contract?
- How roles and responsibilities are defined in terms of what is needed to have a successful project?
- Is the role of the contract simply to state rights and obligations and define commercial terms?
- Can contract provisions be used to establish positive working relationships and/or be a tool to manage the project?
- Does responsibility and rights match accountability and authority?

Eventually, these questions were refined into the following three (3) concise interrelated questions, which were the focus of this research study:

- Q1) What key provisions have had substantive changes over time that had an effect on the construction phase and the contract administration?
- Q2) Have changes in the key provisions of general conditions affected the function of the design professional during the construction phase and the contract administration?
- Q3) Have changes in the function of the design professional, as a result of changes in AIA A201, impacted owners' perception of the value-added benefit by the design professional during the construction phase and the contract administration?

1.5 HYPOTHESES

In parallel with the three questions presented in Chapter 1.4, there were three (3) research hypotheses for this dissertation. (The investigation of the hypotheses was implemented in a three-phase methodology that is set forth in the procedures of Chapter 3.)

- H1) Change has occurred in key provisions relating to the construction phase and contract administration in the AIA A201 contract document from 1951 to 1997. (Investigated in Phase I and Phase II, respectively Chapter 4 and Chapter 5)
- H2) Changes made to key provisions of AIA A201 have had a material effect on the function performed by the architect/design professional during the construction phase and contract administration. (Investigated in Phase II, respectively Chapter 5)
- H3) Changes in the function performed by the architect/design professional during construction and contract administration are perceived by owners as having significantly affected the value-added benefit by the architect/design professional during the construction phase and contract administration. (Investigated in Phase III, respectively Chapter 6)

1.6 VARIABLES

Research is very much the study of variables and how these affect each other. From the hypotheses established in Chapter 1.5, the variables that were observed in this study are identified as:

- Time (1951-1997)
- Change (in Key Provisions)
- Function of Architect/Design Professional
- Owners' Perception of the Value-added Benefit by the Architect/Design Professional

Figure 1 is a matrix of the hypotheses and the variables of this investigation.

<i>Hypothesis</i>	<i>Independent Variable (IV)</i>	<i>Dependent Variable (DV)</i>
<p>H1: Change has occurred in key provisions relating to the construction phase and contract administration in the AIA A201 contract document from <u>1951 to 1997</u>.</p>	<p>Time (1951 – 1997)</p>	<p>Change (in Key Provisions)</p>
<p>H2: Changes made to <u>key provisions</u> of AIA A201 have had a material effect on the <u>function performed by the architect/design professional</u> during the construction phase and contract administration.</p>	<p>Change (in Key Provisions)</p>	<p>Function of the Architect/Design Professional</p>
<p>H3: Changes in the <u>function performed by the architect/design professional</u> during construction and contract administration are <u>perceived by owners as having significantly affected the value-added benefit by the architect/design professional</u> during the construction phase and contract administration.</p>	<p>Function of Architect/Design Professional</p>	<p>Owners' Perception of the Value-added Benefit by the Architect/Design Professional</p>

Figure 1: Matrix of Research's Hypotheses and Variables

Next, Figure 2 illustrates the connection between the research variables and hypotheses linking the principle research questions, while providing the overall framework of the dissertation study.

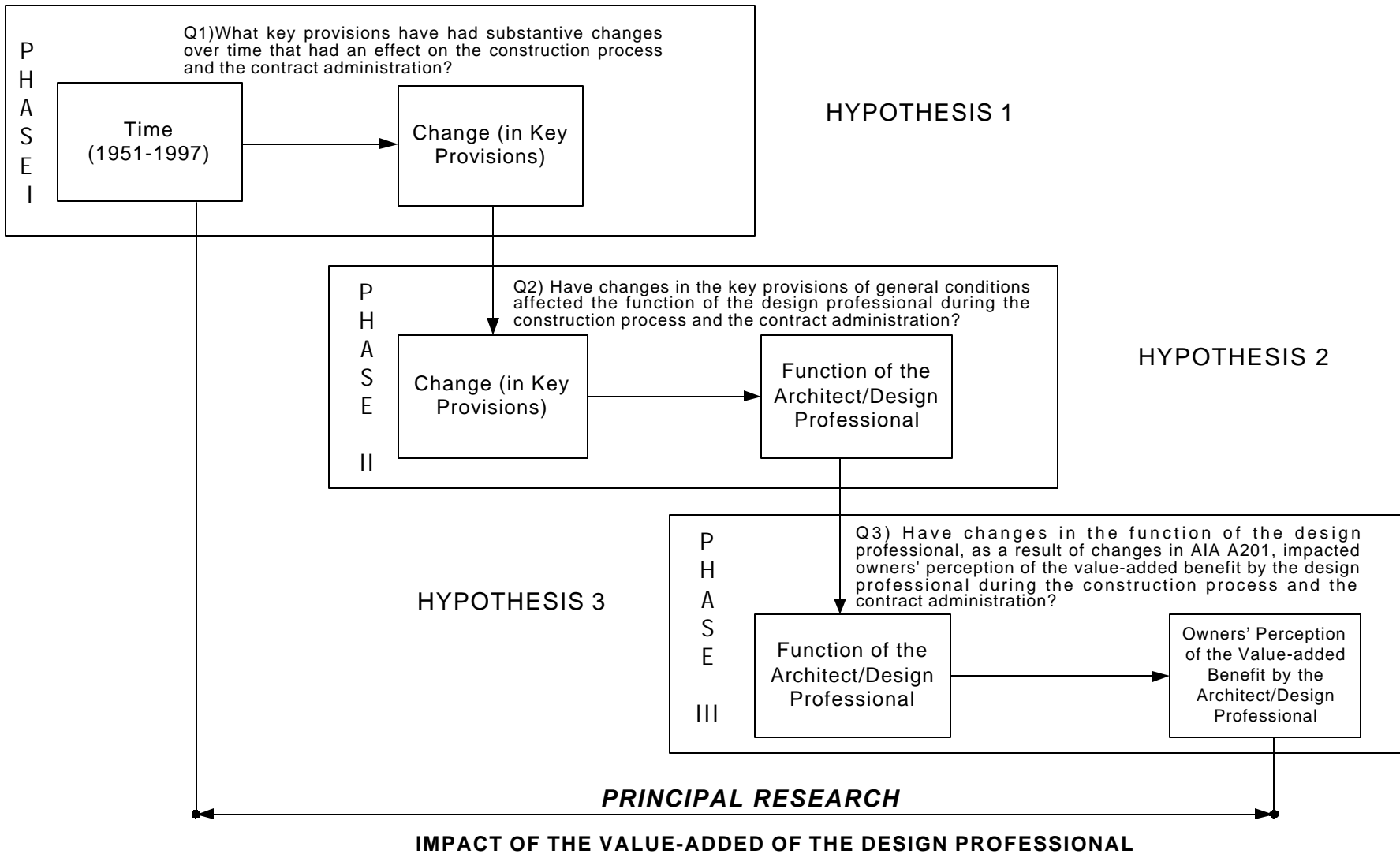


Figure 2: Linkage and Framework between Variables and Principle Research Questions of Dissertation Research

1.7 OBJECTIVES

The vision for this dissertation was to look at the footprints of the past to develop knowledge needed for a better future. **By examining the general history and the evolution of provisions in the general conditions of contract, which govern the construction phase, this dissertation investigated changes to key contract provisions, their effect on the function of the design professional, and the ensuing impact on the owner's perception of the value-added benefit by the design professional during construction.**

In order to address the research problem statement and questions, accomplish the purpose, and manifest the vision for this dissertation, the major objectives set forth were:

- Obj 1) To identify key provisions of construction contract documents and the respective substantive changes to each provision that may have had an effect on the function of the design professional during the construction phase and contract administration. (Achieved in Phase I and Phase II, respectively reported in Chapter 4 and Chapter 5)
- Obj 2) To examine the effect change has had or not had on the function of the design professional's degree of participation required to properly and successfully perform the design professional's assumed duties and responsibilities during the construction phase and contract administration. (Achieved in Phase II, respectively reported in Chapter 5)
- Obj 3) To ascertain the impact that changes to the functions performed by the design professional have had or not had on owners' perception of the value-added benefit by the design professional during the construction phase and contract administration. (Achieved in Phase III, respectively reported in Chapter 6)

1.8 SCOPE

This research was limited to private contracts used for administration of building construction projects. It focused on the documents known as the general conditions of contract, and further, specifically on the AIA Document A201, General Conditions of Contract for Construction (AIA A201) from 1951 to 1997. The owner, architect/design professional and contractor (the trichotomy) are the primary participants in the traditional design-bid-build procurement process and are the main players in the AIA A201.

It was beyond the scope of this research to study all contracts and all provisions. This research focused on identified key provisions of the AIA A201, relating to effective and proper construction and contract administration functions of the design professional during construction. The specific clauses or provisions chosen for investigation were determined in the efforts of the Phase I and Phase II of the three-phase methodology (the research design and methodology is discussed in Chapter 3).

1.9 DISSERTATION OUTLINE

This dissertation consists of seven chapters. A flowchart of the chapters is provided in Figure 3. General descriptions are as follows:

Chapter 1: This chapter is an introduction to this dissertation and its research project. It provides background and statements of purpose. The problem statement is presented, as well as the research questions. The hypotheses, the variables, and the objectives are also identified. The scope of the research and an outline of the dissertation are also provided.

Chapter 2: This chapter presents a basis of understanding and defines the principal areas of interest of which this research focused. This chapter presents a review of the topics important to the baseline of understanding of the research efforts in context of the body of knowledge.

Chapter 3: This chapter briefly explains the research design and the procedures of the three-phase methodology for implementing the investigation of this dissertation.

Chapter 4: This chapter reports on the implementation of Phase I of the research methodology. It details the results of the desk research and achievement of the first objective of the research, concurrently providing material to be used in the implementation of Phase II of the research.

Chapter 5: This chapter reports on the implementation of Phase II of the research methodology. It presents the survey instrument used in Phase II, reports on the data obtained, and provides an analysis and interpretation of the results of Phase II.

Chapter 6: This chapter reports on the implementation of Phase III of the research methodology. It presents the survey instrument used in Phase III, reports on the data obtained, and provides a three-step analysis and interpretation of the results of Phase III.

Chapter 7: This chapter provides a summary of the research for this dissertation. It discusses the results of the three-phase methodology, and evaluates answers established from the research questions and accomplished objectives in the investigation of the hypotheses. Also, this chapter concludes the dissertation with commentary on the contribution of the research study to the body of knowledge.

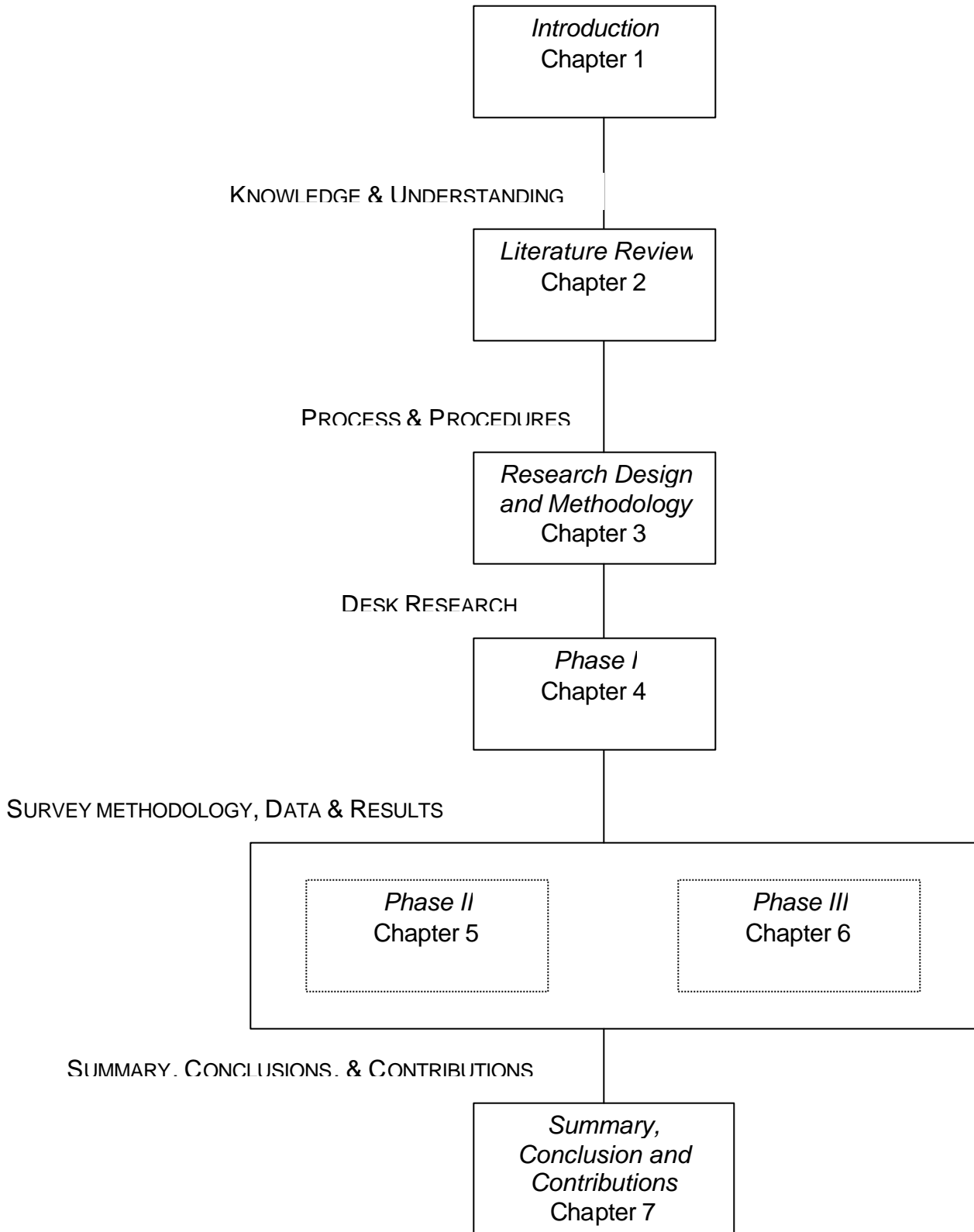


Figure 3: Flowchart of Dissertation Chapters

2 LITERATURE REVIEW

This chapter presents a review of the topics important to this research. The baseline of understanding of the investigation and its place in the context of the body of knowledge are presented.

2.1 CONSTRUCTION PHASE

During the *construction phase*, plans are converted into reality. The subsequent opinion connects construction to design.

“Construction is the last phase of the design process...where design is not what’s represented on the drawings or CADD models, but rather design is what actually gets built.” (de la Garza 1998)

The *construction phase* does not sit in a vacuum. Resource constraints (such as time, money, people, and land) influence the phase, as well as politics, public interest, and laws. Sweet states,

“The construction world can be tough, it does not have to be nasty and ugly.” (Sweet 1997)

For a successful project, Bockrath advocates that,

“The keys to the success of the project are sound management and organization.” (Bockrath 1995)

The *construction phase* is a flexible one (varying delivery mechanism, financing, et cetera). Bockrath remarks that,

“The chances for a successful *construction process* are enhanced by thoughtful and thorough study [of the project] by the owner before the process is initiated.” (Bockrath 1995)

The construction contract (discussed in Chapter 2.3) describes in detail the nature of the construction to be accomplished and the services that are to be performed during the *construction phase*. In general, the contractor is obligated to perform the work in full accordance with the contract documents, and the owner is required to pay the contractor as agreed.

2.2 CONTRACTS

Typically, a prime contractor enters into a *contract* with an owner. In an investigation of general conditions of contract, it is important to have an understanding of what a *contract* is. Contract law is an important field of study. The law of *contracts* undergoes a constant process of evolution because of changing customs and practices.

The American Law Institute declares,

“A contract is a promise or a set of promises for the breach of which the law gives a remedy, or the performance of which the law in some way recognizes as a duty.” (American Law Institute 1981)

In literature, there is a consensus that the elements of a *contract* are an *offer*, an *acceptance*, and *consideration*. Basically, scholars agree that a *contract* is an understanding enforceable at law, made between two or more persons, by which rights are acquired on the one side balance by acts or forbearance on the other. To make an agreement that results in a *contract*, there must be an *offer* and an *acceptance*; and to the promises

that stem from the offer and acceptance, the law attaches a binding force of *obligation*. The contractual arrangement must involve competent parties and be based upon a legal consideration. (Bockrath, Bennett, Bartholomew, Clough, Sears, and Sweet)

An important feature of any *contract* is that it describe what is to be done with sufficient clarity and detail to make evident what is wanted. An agreement, in order to constitute a binding *contract*, must be entered into by competent parties who express definite agreement in the form required by law. There must be a definite promisor and a definite promisee, each of whom is legally capable of playing the intended part in the proposed contractual arrangement. Also, a valid *contract* must have a definite and lawful subject matter. The subject matter should be clearly defined and sufficiently certain to enable a court to determine an appropriate remedy for failure to perform.

An *offer* may be defined as the manifestation of one person's willingness to *contract* with another on certain specified terms. It is a statement by the offeror of what will be given or done in return for some desired promise or act on the part of the offeree. By means of such an offer, the offeror confers upon the offeree the power to create a binding contractual relation merely by acceptance.

An offer gives to the offeree power to create a legally enforceable *contract* by a parties' *acceptance*. This acceptance is necessarily irrevocable, once it is communicated to the offeror. Such acceptance should be unambiguous and should conform to the terms of the offer.

Consideration is something of value received by or given at the request of the promisor in reliance upon and in exchange for the promisor's promise. The consideration for a *contract* differs from the motive, in that the motive is the underlying cause for entering into the agreement, whereas the consideration is the thing given by one party in exchange for and in reliance upon the other party's promise.

2.3 CONSTRUCTION CONTRACTS

Construction contracts are one source of the rules by which the construction industry operates. The contract clauses and specifications in construction contracts bind the contractor to an obligation, but also serve as a vehicle, whereby the contractor can hold the owner and (in some jurisdictions) the design professional (architect/engineer) to their side of the bargain. A *construction contract* can be either a standardized contract or a custom document. The basic and general conditions of a contract are generally boilerplate and include administrative procedures and remedial provisions. Also, technical documents, like drawings and plans that graphically describe the scope of work, make up a portion of the construction documents. Specifications describe the work in words. Sweet concludes that,

"What you end up with is a mixed contract, both legal and technical, usually on a standardized contract of ten to twenty printed pages, incorporating a stack of technical materials." (Sweet 1997)

Because of the complexity of the transactions in the construction phase, standard forms of agreement of construction contracts, as discussed in Chapter 2.4, are essential.

The wording and intent (Chapter 2.9, "Intent and Spirit of a Contract") of contract language in *construction contracts* set the tone and define the contractual relationships. Oftentimes, there is conflict between the parties' interpretation of the standard contract, the required administrative practices required by the standard contract, which is necessary for a successful project.

For example, a contract sets out with certain intent, i.e., “time is of the essence”. Contract provisions, such as liquidated damages (“finish or else”), delay/disruption, scheduling requirements, and extensions of time, are developed to support the intent. From the owner’s and contractor’s perspectives, these clauses may or may not create practices that encourage performance leading to a successful project, as defined by improved timeliness of work, not merely a record of delays and disruptions or schedule gamesmanship. Under the provisions of the *construction contract*, the owner wants the job finished on a date specified in the contract, and the contractor works within the constraints of time and available money.

2.4 STANDARD FORMS OF AGREEMENT FOR CONSTRUCTION CONTRACTS

There are a number of standard forms of construction contracts used in practice today. This chapter discusses who created, why, and how construction contracts evolved originally. It provides a brief history of the present-day conditions of the basic construction contracts. Typically, these contracts are for fixed-price, competitively bid prime construction work. Various professional organizations, private owners, and industry groups publish documents that are used in preparing contracts for design and construction services. (See Appendix A for brief narratives on standard contracts for construction that are used in the construction industry today). These contracts are “boilerplate” or templates, which have been used over many years with periodic modifications and updates.

Once upon a time, during the late eighteenth and early nineteenth centuries, the practice of engineers, like William Jessop, Thomas Telford and John Smeaton, established the services and management structure on a construction project. Construction work was usually carried out by local builders, and the general absence of detailed technical information in some project reports explains why much reliance was placed on the contractors having the practical knowledge and business ethics to carry out the work with a minimum of guidance.

In Civil Engineering, 1839-1889: A Photographic History, Michael Chrimes describes the way projects operated:

“The size and complexities of canal works [The Canal Era of 1839-1859] meant that the use of a single local contractor was impossible, and the route was normally broken up into sections, and tenders invited for parts of the route, with major works such as aqueducts and large bridges often being advertised separately. Contractors could apply to the canal office for copies of the specification, and, if available, they could copy the drawings of the works, and would be expected to submit their tenders by a set date. Specifications were sometimes printed, but contained only a brief outline of the work involved, and a contractor would have needed some practical knowledge of civil engineering practice to draw up the quantities and adequately estimate the costs to ensure he tendered a reasonable price for the work.

The successful contractor would be expected to be able to deposit a fixed sum, usually 10 per cent of the value of the contract, as an insurance against failure to complete the contract, and would need some financial guarantors such as local banks to support his financial solvency. As works progressed, the client’s representative, usually the resident engineer, would certify work done and authorize payment, which might be referred to the consultant. In the case of dispute over payment or carrying out the work, provision for an arbitrator would be made.” (Chrimes 1992, p. 22).

Chrimes reports that a group of competent men were emerging who could be relied upon to carry out a reasonably good standard of work, who got their estimates right, who could obtain financial backing, because

bankers and others realized they were likely to make a profit, and who were trusted by engineers because of past performance.

During the Railroad Era (1852 –1859), a contracting system had developed mature professionals of architects, engineers, and contractors with proven methods of organizing the construction of large projects and an international reputation for technological innovation. Although some of the railway schemes were quite common, the scale of the largest projects required a degree of organization rarely seen before. On the London-Birmingham Railway, Robert Stephenson developed a system that showed how construction project administration could be done. Stephenson realized the importance of a full survey and accurate drawings to be able to monitor progress on the works and ensure quality control. As drawings were completed, a full description and specification were drawn up, and the contract could then be bid. Contractors were paid monthly, with the resident engineer referring to the drawings and specifications to estimate the work done. In all, 17 contractors were involved in the 30 contracts on this railway project. Isambard Kingdom Brunel, building the Great Western Railway, copied the Stephenson model. “The printed contract documents and lithographed contract drawings were part of a meticulous attention to detail in the contract procedure, which are the bases of civil engineering contracts today.” (Chrimes 1992, p. 88)

Today, there are a number of contract forms and types available to owners for accomplishing their construction needs. The selection of the proper contract form appropriate to each project is an important decision for the owner and is carefully considered. Since the focus of this dissertation was on AIA A201 General Conditions of Contract, Chapter 2.5 provides information on the AIA organization and Chapter 2.6 presents information on its publications.

2.5 THE AMERICAN INSTITUTE OF ARCHITECTS (AIA)

Since its founding in 1857, the American Institute of Architects (AIA) has engaged in supporting an array of design and construction activities throughout the United States (US). According to the AIA by-laws, its mission is:

“To promote the aesthetic, scientific and practical efficiency of the profession; to advance the science and act of planning and building by advancing the standards of architectural education, training and practice; to coordinate the building industry and the profession of architecture to insure the advancement of the living standards of people through their improved environment.” (Architect’s Handbook of Professional Practice 1987, Para. 1.2)

In addition to seeing itself as speaking for the architectural profession, the AIA claims to be a leader in the US construction industry. This claim is based to a large degree on the high use of its publications of contract forms, and in the view of the AIA, publication of forms that reflect the standard practices in the industry. Many scholars, legalists, and industry practitioners agree that the most widely used contract document in the construction of buildings in the US is AIA's A201 General Conditions of the Contract for Construction. (Bartholomew, Sweet, Bockrath, Ellickson, Lunch, et al).

“The AIA [documents] have found wide acceptance for building construction...They have evolved into a form that has stood the tests of time and experience and have become familiar to contractors, architect-engineers, and owners.” (Clough and Sears 1994, p. 69)

During the liability explosion period beginning in the 1960s, editions of AIA A201 came out in 1961, 1963, 1966, 1970, and 1976. In 1997, the 15th edition of AIA A201 was released. Now, AIA's plan is typically a 10-year revision cycle.

The AIA Documents Committee plays the most significant responsibility in the document-making process. Members of the committee consist of 12 to 24 architects who generally practice in mid-sized to large firms. Typically, the members have had experience in construction administration. They meet four or more times a year for two- to three-day periods.

"The AIA [Documents Committee] seeks an 'industry consensus,' 'uniform legal interpretations,' 'comprehensibility,' a clear and equitable distribution of rights and duties, and reflection of national industry customs and practices. Surveys of customs and practices are rare. The AIA relies heavily on experience of committee members. The AIA states it does not attempt to impose new practices." (Sweet and Sweet 1996)

In 1990, AIA received a report (AIA Documents Task Force 1990) from its Documents Task Force, which stated that,

"the AIA publishes its documents to give guidance on both accepted industry practices and on legal matters related to construction relationships."

It also states AIA seeks to:

- Enhance "stability and order"
- Assist users who cannot get or cannot afford "knowledgeable legal counsel"
- Provide "an alternative to expensive, custom-drafted documents"
- Promote "flexibility" through "supplemental guides"
- Provide a "balanced and fair" document
- Conform to "common law and statutory precepts adopted in the majority of jurisdictions (if that opinion is deemed fair)." (AIA Documents Task Force 1990)

Like all contracts, the AIA standard documents are intended to be fair and balanced baselines of understanding from which the parties can negotiate their bargains. As to risk and responsibility, the AIA states that it allocates them:

- To the party best able to control them
- To the party best able to protect against unexpected cost
- To the owner when no other party can control the risk or prevent the loss. (Ellickson 1990)

The AIA contracting system claims to be not only a mechanism for orderly administration for design and construction services, but also a service to and protection for architects. Creating documents helps reduce liability exposure and help members reduce their need for legal counseling. During deliberations of the Document Committee, Sweet alleges that on occasions:

"language may be added to satisfy members who have reservations. This leads to excess verbiage and redundancies." (Sweet and Sweet 1996)

It is possible that language may be added when the committee is unsure whether courts will pay attention to what the committee has said and conclude what the committee intended (Chapter 2.9 examines the subject of intent and spirit of a contract). Sweet argues that,

"This concern may be especially strong regarding language, which attempts to exculpate the architect." (Sweet and Sweet 1996)

Throughout its history, the AIA has maintained active professional relations with many public and private organizations. In drafting the latest and 15th edition of A201, AIA Documents Committee solicited input from:

- Owners
- Contractors
- Subcontractors
- Engineers
- Architects
- Attorneys
- Arbitrators
- Independent insurance agency
- Surety agency
- Industry groups

A 1998 website article, “AIA Documents: What’s New”, reports that “The result of this wide range of input is a document that reflects industry practices and current law, and that balances the interests of all the parties to the contract.” Consequently, AIA A201 claims to incorporate more recommendations from interested parties in the industry than any other AIA contract documents. But, ultimately, Sweet and Sweet suggest,

“although AIA meets and confers with the AGC and receives endorsements, in reality, the AIA has played a dominant role in choosing terms, allocating responsibilities, and selecting administrative machinery, all of which can back up its claim as the industry leader.” (Sweet and Sweet 1996)

Justin Sweet, a preeminent academic authority on construction law and AIA documents, and Jonathan J. Sweet, a prominent lawyer and judge pro tem, declare that certain assumptions are implicit in the principal AIA documents, like the B141, A101, and A201. In their opinion, AIA documents assume that:

- The architect is in a weak bargaining position when the architect deals with the owner
- The owner has greater bargaining power than the prime contractor and that the prime contractor has greater power than subcontractors do
- The construction project will divide design and construction
- The design will be created by an independent architect retained by the owner
- The architect will play the central role in administration, interpreting the contract, passing upon performance, issuing certificates for payment, and reviewing contractor submittals
- The architect will retain those consultants normally used, except the geotechnical engineer, who will be retained by the owner
- The single contract system will be the principal method used to deliver construction services [A201, Article 6 does address multiple prime contracts]
- Most projects using the AIA system will involve a construction contract with fixed price, rather than a cost-type contract or a unit price contract
- Award of a contract will be made on the basis of competitive bidding, not by negotiation [1987 A201 does recognize the increased use of negotiated contracts]
- Most owners will be private entities
- The owner will have little experience in construction and often will be without the aid of counsel at either the inception of design or award of the construction contract (Sweet and Sweet 1996, p. 12-13)

The primary and most widely used and accepted contract boldly declares that it is:

“the product of a consensus-building process aimed at balancing the interests of all parties on the construction project. The documents reflect industry practices and are regularly revised to keep up with the changes in the law and the industry.” (General Information, AIA A201 1997)

Since 1911, the AIA has been working for architects and leading the industry in contract publication.

2.6 AMERICAN INSTITUTE OF ARCHITECTS DOCUMENT A201, GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION (AIA A201)

This is a narrative of the history of the AIA Doc. A201 standard form of contract. AIA A201 has been also been referred to as “a monstrous 24-page printed standard contract.” (Sweet 1997, p. 191) This chapter provides background information that provides the context of how the AIA contracts came about and by whose influence. The AIA contract documents (specifically AIA A201) are by far the most widely used form for fixed-price building construction work in both the public and private sectors, particularly the private sector. (Bartholomew 1998, Sweet, et al)

A chronological summary, based on the article “A Hundred Years (Or So) of AIA Standard Documents” by Joseph Dundin, an editor with the AIA documents program, provides the best chronicle of the history of the AIA documents. The historical account begins:

Three organizations (AIA, the Western Association of Architects, and the National Association of Builders) recognized the need for a standard contract form and appointed a committee from among their members to draft one. In 1888, architects drafted the first edition of the “Uniform Contract.”

“The Uniform Contract was three legal-size pages long. Today, it is difficult to imagine how three pages of filled-in blanks and boilerplate could govern adequately anything as complex as the construction of a building, even the much simpler buildings of a century ago. Yet it was an accurate reflection of American business and professional relationships as they existed at that time...The Uniform Contract provided for arbitration, required the contractor to give the architect access to work in progress, allowed for adjustment of the contract time in the event of delay not the fault of the contractor, required the owner to provide fire insurance for the work and stated that the drawings and specifications are and remain the property of the Architect.” (Dundin 1988)

In 1907, the next major development authorized by the AIA was to publish a new set of standard contract documents, with general conditions separate from the agreement form. The first edition of the Standard Documents (including the General Conditions of the Contract, the ancestor of the present A201) was published in 1911.

In addition to the Form of Agreement and the General Conditions of the Contract, the Standard Documents of 1911 included an invitation to bid, instructions to bidders, a form of proposal, and a bond form. (Dundin 1988) During this time, the focus was on the contract between the owner and contractor. The 1911 general conditions introduced concepts that are still found in today’s A201. For example, the owner and contractor were required to maintain separate insurance. Each could, after due notice, terminate the contract upon default of the other, although termination by the owner was conditioned upon certification by the architect that such action was justified. A one-year correction period was specified, and arbitration procedures with time limits, were set out in detail.

In 1911, the General Conditions met with considerable resistance, in part because the organization of its articles was thought to be needlessly complex. A more serious problem was the opposition of contractors. Dundin reports that the contractors,

“found certain of its provisions onerous and effectively boycotted the document.” (Dundin 1988)

In 1914, the AIA and the Master Builders' Association formed a joint advisory committee, which was chaired by William Stanley Parker. The 1915 standard documents were well received. The general conditions contained numerous small changes for the benefit of the contractor: fire insurance became the responsibility of the owner; more detailed payment provisions were included; and, final payment was made contingent upon release of liens. The scope of the arbitration provision was broadened to include any decision of the architect. Dundin writes,

“The transfer to the contractor of the authority to act in emergencies, along with the liability that authority carries was added.”

Equally important, Article 9 first used the term “supervision” with reference to the architect’s role during construction. Dundin comments,

“a term that would give rise to a bitter struggle within the profession [and the industry] 45 years later.” (Dundin 1988 and Sweet 1997)

In 1917, the AIA published two Forms of Agreement between Owner and Architect, one for percentage-fee services and one for services performed on a cost-plus-fee basis. This edition encountered

“resistance from owners, who found too great a stress laid on the duties of the owner and not enough on the responsibility of the architect.” (Dundin 1988)

In 1926, the 1917 objections were addressed and intended for use with the revised general conditions. The documents then assumed the form they would retain until 1950. Dundin states,

“It is amazing to consider the stability of contractual relationships that permitted the documents to continue in use for more than two decades without essential change.” (Dundin 1988)

Stability of this kind was in part a product of gross instability in other areas. During the 1930s, architects and contractors fortunate enough to be working were not inclined to haggle over terms. The war reversed the economic situation, but it also brought pressure from the federal government to get on with the job and not waste time in disputes. Dundin declares,

“It would take post war prosperity to produce the litigious environment we take for granted today.” (Dundin 1988)

The increase in volume of construction following the war meant that more claims would arise. In addition, it was a time when many new technologies were just coming in general use and changes in the law were just as important.

In the 1951 and sixth edition of the General Conditions, legal developments were just beginning to affect the AIA documents. Parker and the other drafters gave a concerted effort

“to allocate risk as fair as it was possible to do so in a standard document.” (Dundin 1988)

Another change was the addition of language specifically allowing the architect to withhold certificates for payment. Conflicts between the owner and contractor were impinging on the architect in the role of arbiter, and thus requiring that the architect’s role be more defined.

In the 1950s, change accelerated for the construction industry, the architect profession, and the AIA.

“The increase in litigation continued, and architects found themselves increasingly likely to be named in suits arising from construction claims.” (Dundin 1988)

Consequently, the AIA developed the first comprehensive professional liability policy for architects.

In 1958, significant changes were made since the 1951 edition: a mutual waiver by the owner, contractor, and subcontractor of rights for damages and for loss due to fire; language making the contractor responsible for checking field measurement; and language clarifying the distinction between the contractor’s warranty and the one-year correction period.

The 1960s were considered the most interesting period for the evolution of the standard documents. An important trial court in Louisiana contributed to the changes in the 1961 edition.

Day v. National U.S. Radiator Corporation et al. held an architect solely liable for the death of a worker killed in a boiler explosion. The subcontractor employing the worker had installed the boiler without the thermostat and pressure relief valve called for in the specification and had mistakenly installed these devices on a hot water storage tank instead. He then test fired the boiler without notifying the architect and the boiler exploded. Nevertheless, the court ruled that the architect, charged with ‘supervision of the work’ under the contract, was responsible for the accident. (Dundin 1988)

Even though the contract in question was not the AIA, the equivalent language in the AIA document read:

“The Architect shall have general “supervision” and direction of the work.” (Dundin 1988)

The AIA filed an appeal, which ultimately succeeded when the Supreme Court of Louisiana reversed the decision of the lower court. AIA also responded by revising the language to read:

The Architect shall be the Owner’s representative during the construction period and he shall “observe” the work in process on behalf of the Owner. (Dundin 1988)

The 1961 edition was immediately revised for reissue in 1963. In the 1963 edition,

“the language introduced to describe the architect’s status is essentially the same as the language in A201 today...the 1963 edition was the first to carry the A201 designation.” (Dundin 1988)

The 1966 edition embodied the first major reorganization; paragraphs, subparagraphs, and clauses were introduced as formal subdivisions of the articles. This edition also introduced an indemnification provision whereby the contractor held the architect and owner harmless from all losses caused by the contractor or the contractor’s subcontractors or employees. Dundin states,

“Not surprising, this was not popular with contractors.” (Dundin 1988)

Again, contractors boycotted the general conditions AIA A201. Ultimately, in a quickly revised 1967 printing, AIA made an exception, which supported that

“an architect’s errors need not be embodied in the documents alone.” (Dundin 1988)

And, in the 1967 edition, claims procedures were expanded.

By 1970, the drafting process had stabilized. In this edition, the architect's authority to stop work was taken out of the general conditions due to certain court decision suggested that in the event of a loss suffered by the contractor, a subcontractor, or one of their employees, and despite a disclaimer to the contrary, the architect might be held liable. There are almost 100 documents published by the AIA; among them are owner-contractor, owner-architect, contractor-subcontractor, and architect-consultant forms. Construction management documents were introduced in 1975, interiors documents in 1977, and design/build documents in 1985. All of the new documents contain provisions based on AIA A201.

To put things in perspective, the words of William Stanley Parker in the Bulletin of September 1949 are still true:

"No standard document should be looked upon as permanent, never to be changed. However, it is interpretation by the courts that gradually defines its meaning, and the opportunity to get this definition will be lost if a document is constantly revised." (Dundin 1988)

The AIA Documents Committee is charged with the task of developing the AIA A201. The Documents Committee is governed by the provisions of the "Documents Drafting Principles" of AIA Doc. M120, which are:

- To establish and maintain, for nationwide application, standardized legal forms in order to enhance the stability and order of design and construction legal transactions
- To provide assistance to users who otherwise cannot obtain knowledgeable legal counsel in a timely or economical fashion
- To give architects a direct role in setting the terms of contractual relationships in which they practice their profession, and to provide continuing education to practicing architects in the proper use of the documents
- To strive for balanced and fair documents
- To publish documents that are subject to uniform legal interpretations so as to be predictably enforceable and thus reliable
- To reflect industry customs and practices, where practices are consistent among regions, rather than impose new practices are inconsistent or no guidelines for practice exist, to provide a consensus-based model for practitioners to follow (AIA Document M120, Documents Drafting Principles, First Edition, 1995).

Today's AIA documents are revised every 10 years. These documents are used primarily for engineered construction in the private sector and are endorsed by the AGC and other industry organizations. This chapter provided a thorough introduction to the evolution of the most familiar, long standing, generally accepted, widely used, and well-documented standard contract that is used in the US construction industry, the AIA A201.

2.7 EXISTENCE OF INDUSTRY ORGANIZATIONS AND THEIR RESPECTIVE CONTRACTS

As indicated in Chapter 2.5, the AIA does not presume to speak for all or any of the parties participating in their development. Recognizing that differences in philosophy do exist, the AIA professes not to restrict any organization's right to publish its own documents, procedures or supplementary conditions. The AIA, as well as all other organizations, declares it "intends to ensure that its documents are equitable, feasible, and generally accepted." (www.aia.org)

While the design and construction documents published by AIA are, as suggested by the AIA, Professor Justin Sweet and others, perhaps the most widely used form contract documents in the United States, they are not the only "family" of contract documents published in the United States for design and construction services. There are a number of standard forms of contracts used in practice today. Various professional organizations publish documents that can be used in preparing "boilerplate" or prime contracts for design and construction services. The start of the contract's hierarchical chain is the prime contract. It is from this contract that subcontracts and sub-subcontracts are derived. Documents, including general conditions, are published by the Engineers Joint Contract Documents Committee (EJCDC), which is comprised of the American Society of Civil Engineers (ASCE), the National Society of Professional Engineers (NSPE), and the American Consulting Engineers Council; the Associated General Contractors of America (AGC); the Construction Management Association of America (CMAA); and the Construction Owners Association of America (COAA).

General conditions can be onerous and one-sided in favor of one party or another despite organizations' attempts to achieve the contrary. Organizations get together with its constituents to discuss industry-related issues of mutual concern and to participate in the development of strategies and policies that best serve them in the construction/design phase. Therefore, these organizations exist under the auspices of their own mission and vision for the benefit of its constituents.

Arguably, the appearance/existence/creation of certain organizations (i.e., CMAA, COAA, and AOD) is in response to the evolution of and/or incremental changes within the AIA published documents. Specifically, CMAA exists to support

"professional construction managers in enhancing their performance and capabilities and improving their business results...CMAA is leading the growth and acceptance of Construction Management as a professional discipline that can add significant value to the entire construction process." (www.cmaanet.org)

Furthermore, one of the significant benefits of an organization, like CMAA, is the alternative form of contract documents. During an interview with Danelle Prezioso, Communications Manager for CMAA, she stated that in 1985, CMAA conducted a survey of its members seeking information on how the organization could best serve them. A salient issue the membership wanted CMAA to address was the perceived imbalance with the standard documents. Prezioso stated that a major result of the 1985 survey was that

"the members wanted an alternative contract that reflected the true role and value of a CM and our goal is to level the playing field."

Prezioso went on to state,

“CMAA can certify a contract authored by us, but can not certify or place our name on a contract authored by another association. The practices/views of CMAA may not necessarily be the views of another association. I think it is safe to say that a CM contract authored by the authority in the field (and whose members are all in the CM industry) is of better service to someone wanting to enter into a CM contract.” (Prezioso 2001)

Thus, one of the reasons for existence of CMAA is “to be the authority in the management of the construction process.” They set out to provide the unison voice and a range of resources for construction managers.

As introduced in Chapter 1.2, the COAA was founded in 1994 to act as a focal point and voice for the interests of owners in construction. COAA is composed of men and women representing construction owners in America. The goals of COAA are to be a meeting place to gather, share common goals, learn, discuss, survey the future, and share a collective voice. Furthermore, COAA pursues ongoing learning and innovation in order to develop services and products that advance the knowledge and skills of members. Hence, COAA’s goal in creating documents is

“to make a significant lasting impact on the construction industry while balancing the interests of the parties in the construction process. It is dedicated to helping owners bring balance to the construction process, and develop the leadership skills and knowledge to integrate and facilitate the various parties involved in the process.” (Contract for Construction May 2000)

In many cases, AIA standard contracts do not, in the view of owners, complement this goal of equity adequately, thus, the existence of COAA contract documents.

“As far as we can see, these documents are a laudable effort to represent the view of owners in correcting the perceived imbalances in the American Institute of Architect’ model design agreement. The AIA document naturally represents the point of view of architects about what is fair.” (Korman, 2000)

The Executive Director of COAA, Tracy Chapin, stated in an interview that the greatest example of the need for an owner’s contract like COAA’s pertains to the owner’s ownership of the drawings and specifications resulting from the services of the design professional. (Chapin 2001) In Chapin’s opinion, this was the major area of contention between AIA standard documents and COAA’s membership. COAA contend that,

“Perhaps nowhere else are the AIA and COAA documents so fundamentally different. The AIA takes the position that even though the Owner pays for the Construction Documents, it does not own them but is merely permitted by the Professional to use them for a single project. The COAA, on the other, begins with the idea that the Owner, by paying the Professional’s fee, has purchased and thus owns the Construction Documents outright, for use as the Owner sees fit.” (Verwys and Braun 2000, p. 10)

In whole,

“Provisions that AIA considers sacred are eliminated in the COAA model contracts. For example, COAA drops AIA language that absolves an architect of any role in a lawsuit or arbitration between an owner and contractor. And, COAA’s model contract overturns the customary tenets of intellectual property involved in design work. COAA puts legal possession of the design in the hands of the owner, freeing a client to reuse drawings without reemploying the designer...In one major change in the COAA model, the owner sets dates for both substantial and final completion of the work.” (Korman 2000)

Therefore, COAA is

“zealous in their advocacy of the owner’s interests...What COAA is doing is making sure the owner has a voice. As an association representing the customer who should be the central focus of every construction project, we believe COAA should be heard.” (Korman 2000, p.212)

Likewise, the AOD was formed in 1994 to be “the” owner association in the construction industry. Many owners were of the perception that their needs were not openly considered in the development of the 1997 edition of the AIA A201 documents. Major changes were made to the AIA General Conditions in 1997, changes that have had a significant impact upon owners.

“Owners were not given the opportunity to address these changes in draft because there was no association to do so on behalf of the owner’s interests.” (Katz 1999)

Bundschuh and Pavloff state,

“Owners’ concerns were not heard as loudly or clearly as was due to the absence of a single association that could speak on their behalf.” (Bundschuh and Pavloff 1999)

Despite the fact that AOD was created to give the owner a voice, AOD asserts that their AOD 2000 family of contract documents does not fundamentally alter the traditional balance of risk between parties. Traditionally, risk is assigned to the party best able to manage it. It is alleged that other standard form of agreements (like AIA A201) has increasingly shifted more risk to the owner. The AOD agreement is designed not to automatically assign to the owner risks that cannot be fairly assigned to other parties. Rather, AOD declares that its intention is that the agreement splits these risks between the parties.

By the same token, AGC states that the use of their standard forms

“provide an invaluable reference to accepted industry practices and customs. In fact, they serve as written ‘spokespersons’ for contractors and the industry, relating the best paths to successful projects.” (ENR October 1998)

As has been cited, the language of a given standard form tends to be protective of one party and hold others responsible when gray areas arise. The AGC standard contracts set out to protect the contractor in areas in which responsibility is unclear or subject to interpretation.

“The debate over the merits of design delegation has pitted design professionals against contractors and vice versa. Contractors are concerned that the architect/engineer can shirk responsibility under its agreement with an owner for complete project design...Others speculate that the A/E community is simply looking to limit their duties because of lower fees and to minimize exposure due to insurance cost.” (Consulting-Specifying Engineer January 1999) Furthermore, “AGC document specifically includes shop drawings in the definition of contract documents. But AIA’s document says that they are not part of the contract documents, and that the architect’s review of submitted shop drawings is limited to checking for conformance with the “design concept.” (Lunch 1998)

Consequently,

“The new relationship established between the AIA and AGC as part of AIA’s development of new standard form contract documents is being put to the test. There is an inconsistency in language in the A201 construction contract that AGC has endorsed and the B141 contract for architectural services...The inconsistency relates to the level of information that the owner and architect must provide when design responsibilities are delegated to a contractor on a project. This was an area of critical concern to AGC during the development of the A201 document. Carefully crafted

compromise language inserted into the final document was one of the main factors behind AGC's endorsement last fall." (Krizan 1998)

Not surprising,

"It has long been an article of faith in the construction industry that all contract documents published by the AIA be coordinated—particularly between the designer-owner contract and the general conditions binding on the contractor. That pattern may be changing with the recent publication of a new set of general conditions by the AGC (AGC 200). While there are many similarities between the AIA and AGC documents, there also are significant differences that could lead to problems unless care is taken to recognize potential conflicts of interpretation." (Lunch 1998)

At the same time, several factors are in favor of AIA's retaining control over development of the documents it publishes. The AIA retains, at all organizational levels, full and final authority over the timing of the phases of development and revision, the extent of the incorporation of outside recommendations, and the exact nature of any language appearing in the AIA documents. The AIA states, "It considers the interests of any party only on the objective merits of its proposals." The AIA claims that it will work closely with the proponents of acceptable concepts to develop appropriate contractual language. However, the burden of drafting will remain with the authors of the proposal, and the AIA may reject any proposal on the sole basis of inadequate documentation or unacceptable language. At its own discretion, the AIA will invite interested parties to submit comments or appear at documents committee or task group meetings. It will inform such parties in advance of scheduled or proposed creations of or revisions to documents falling within their scope of interest. The AIA invites parties participating in the development and review of AIA documents to endorse these documents. In return, the AIA insists on reciprocal rights to review and comment on documents prepared by other parties that touch on its own interests, i.e. those of architects.

In summary, the interpretation and position taken by owners on the changes made to AIA contract documents dictate the response that the incremental changes in the evolution of contracts by organizations, like AGC, will take. The language of a given standard form tends to be protective of one party and hold others responsible when gray areas arise. For example, historically, standard forms of contract documents have paid little attention to owner interests. The standard form documents developed by AIA have not put owner interests at the forefront. Yet, like AIA, other organizations claim that their contract documents are fair and equitable to all team members. Hence, owners either had to use the standard forms created by other construction industry segments or prepare their own contract documents. As a result, the industry has documents from organizations like CMAA, AOD, AGC, and COAA. In drafting contracts, each organization especially addresses issues of importance and how the industry-wide standard form documents currently deal (or fail to deal) with the issue and how the issue ought to be resolved from their constituents' perspective.

The emergence of the organizations does have an impact on the evolution of and/or incremental changes within the AIA published documents. Many practices common in the construction industry today became established through their inclusion in AIA's general conditions and its other standardized documents. And, while the AIA documents have had a profound influence on the industry, the influence also runs the other way. Case law on contracts for design and construction has for the past century been based largely on the language of AIA

standardized documents and contracts derived from them. At the same time, arbitration, the one-year correction period and the architect's role in deciding disputes are practices that have been provoked for consideration by external organizations. AIA declares,

“The documents’ relationship to the industry---influencing it, and in turn being influenced by it--is paralleled by their relationship to the law.” (e-architect 1998)

Organizations’ impact on the evolution of and/or changes made to the AIA contract documents is limited to the willingness of AIA’s document committee and the combined influence. Each organization has a mission, which serves its respective constituents (Appendix B presents additional industry organizations). And, each organization on behalf of its constituents, whether through an alliance or individually, claims to support a contract that claims to aim to:

- Protect from liability
- Reduce responsibility
- Influence the performance
- Reduce unfair competition
- Define favorable roles, rights, responsibility, accountability and authority

Keeping in mind the words of Justin Sweet,

“There’s a market in standard documents, just as there’s a market in TV sets and cars. Buyers vote their preference through their document purchases...If you see that your forms are not selling, you can see that people don’t want the arrangement that your forms create.” (Sweet 1997, p. 92)

For decades, various construction industry interest groups have provided “standard form” contracts for design and construction services, as described in Chapter 2.4. Those documents are usually and understandably biased in favor of the constituents of the organizations that produce them. Thus, many organizations undertake the challenge to provide a balanced alternative, yet they are likewise consistent with its organizational vision and mission.

2.8 GENERAL CONDITIONS

General Conditions are also referred to as “General Provisions”. *General Conditions of Contract* are denoted by Bartholomew as,

“very definitive statements, clause by clause, of all general terms and conditions that will govern the performance of the contract work.” (Bartholomew 1998)

Clough and Sears espouse that the *general conditions*,

“set forth the manner and procedures whereby the provisions of the contract are to be implemented according to accepted practices in the construction industry. These conditions are intended to govern and regulate the obligations of the formal contract...They are not intended to regulate the internal workings of either party to the agreement, except insofar as the activities of one may affect the contractual rights of the other party or the proper execution of the work.” (Clough and Sears 1994)

The definition and role of *general conditions* in the contract and the construction phase are widely agreed upon by academics, legalists, and industry participants. Typically, general conditions include provisions regarding the following items:

- Definitions
- Administration procedures
- Rights and responsibilities of owner
- Duties and authorities of the design professional (architect or engineer)
- Rights and responsibilities of contractor
- Subcontractor participation
- Time
- Payments and completion
- Changes in the scope of work
- Protection of persons and property
- Insurance and bonds
- Disputes
- Termination of the contract
- Safety

In the AIA system, the most important document is the AIA A201 (expounded upon in Chapter 2.6). The general conditions of AIA A201 are frequently used and are the boilerplate documents for mostly private and some public contracts.

2.8.1 KEY PROVISIONS

The provisions of the general conditions that are salient to a successful project and/or provisions that have impacted industry practices, paradigms, and progress to improve the construction phase were considered in this dissertation as “key” provisions. Most importantly, *key* provisions, as understood for this research, were considered those provisions that directly affect the function performed by the design professional in construction and contract administration during construction. *Key* contract provisions determine the role of the design professional. This research focused on *key* provisions of the AIA A201, relating to the functions of the design professional during the construction phase. As outlined in the purpose statement of Chapter 1.2, the owner’s perception of the value-added benefit by the design professional, as realized from the *key* provisions, was the focus of the investigation for this dissertation.

2.8.2 CHANGE IN PROVISIONS

Through the 19th century, building and engineering projects were administered under concise contracts that plainly stated the parties’ commitments and detailed time, payment, and safety requirements or in total, what is known today as the general conditions. The demands on the infrastructure and increasing populations have escalated the prosperity of the construction industry. Simultaneously, contracts have evolved as the number of stakeholders, the complexity of projects, and the degree of risk increased with the growth of the industry.

General conditions of contract play a paramount role in defining the rules by which the construction industry operates. At the same time, the construction industry’s rules, players, and practices have evolved. General conditions mirror industry practices. Industry participants, technology, and legislation induce change. As industry

practices change, so do the contracts that define the rights and obligations of the parties, and the “rules of the game”. As a result, construction contracts have correspondingly evolved in size and in context, e.g. *change* in provisions. In the evolution of construction contracts, the formatting and wordsmith are evident throughout the industry, as well. And, typically, explanations or reasoning for the changes do not accompany the contract.

As the historical accounts of standard documents revealed in Chapter 2.4, laws, practices, individual stakeholders, industry groups, and professional groups induce changes. The understanding of changes that have occurred throughout the evolution of the AIA A201 is critical to the future development of and the betterment of the construction phase, stakeholders’ experiences, and project outcomes. For this dissertation, *change* is simply defined as a change from one edition to the next edition, as illustrated in examples below. Incremental changes, as shown below and investigated in this research, are made from one contract edition to another contract edition and are justified as required to improve clarity of the context of the contract clause intent, to reconcile the document with industry practice and use, to provide professionals with a stronger defensive shielding in anticipation of claims or conflicts, and to address the construed interpretation by the courts. (AIA Documents Task Force 1997)

Examples of the types of change extracted from The A201 Deskbook Understanding the Revised General Conditions by Sink and Petersen (1998) are as follows:

2.8.2.1 INTRODUCTION OF A NEW PROVISION

Introduction of a new provision means an addition of a new provision to the contract conditions that did not exist in the previous edition.

For example---AIA Doc. A201-1997 Article 4 introduced Mediation as a new alternative dispute resolution procedure during the construction phase, precursor to the existing and established procedures of Arbitration.

Change: Mediation was not a provision in the AIA Doc. A201-1987.

2.8.2.2 AMENDMENT OF A PROVISION FOR SUBSTANCE

Revision of a provision for substance means a change of significant nature; an addition or deletion of contract language that goes beyond wordsmith and formatting; one that changes the practice and administration of the provision from the previous edition.

For example--- 1987 Subparagraph 2.2.2 and 2.2.4 → 1997 Subparagraph 2.2.3 and 2.2.4

INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

Change: The Contractor is entitled to rely on the accuracy and completeness of information furnished by the Owner.

2.8.2.3 DELETION OF A PROVISION

Deletion of a provision means the removal of a provision to the contract conditions that existed in the previous edition.

For example--- 1987 Subparagraph 4.3.3 → 1997 Subparagraph 4.3.2

TIME LIMITS ON CLAIMS

4.3.2 Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Claims must be initiated by written notice to the Architect and the other party.

Change: Deleting the provision regarding additional claims.

2.8.2.4 REVISION OF A PROVISION FOR CLARITY

Revision of a provision for clarity means addition or deletion of text by wordsmith and/or format in order to explain and improve the understanding of a provision.

For example--- 1987 Subparagraph 2.1.1 → 1997 Subparagraph 2.1.1

GENERAL

2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Subparagraph 4.2.1, the Architect does not have such authority. The term 'Owner' means the Owner or the Owner's authorized representative. (Sink and Peterson 1998, p. 107)

Change: The Owner is required to designate a representative empowered to act for the Owner on the Project.

2.8.2.5 CHANGE IN AIA PROVISIONS AND AN EXAMPLES OF THE INDUSTRY RESPONSE

Despite the wide use of the AIA documents, the trends set by the incremental changes of their contract documents do not always result in an impact on other organizations' documents. For instance,

"AGC does not deal with the controversial issue of design delegation. If the owner and the architect utilize the AIA agreement form (B141), the contractor may be required to provide designs for specified project elements...However, the AGC general conditions do not contain such a requirement." (Lunch 1998)

Likewise,

"With respect to dispute resolution, AIA defines detailed procedures to be followed for handling claims. It specifies mediation as a necessary precedent to initiating a legal process. Arbitration

follows if mediation is unsuccessful. AGC similarly calls for mediation, and by a separate document lists a series of optional steps to be followed if mediation does not work. While the AGC approach applies only to the owner-contractor relationship, it also may impact the dispute procedure applicable to the design professional.” (Lunch 1998)

In addition, the EJCDC documents are particularly parallel to the AIA documents. And, as mentioned in Chapter 1, the role of the architect and the engineer are interchangeable on many projects. For example,

“The usual design/build arrangement involves only two parties—the owner and the design/builder. The AIA forms identify four—the owner, design/builder, design professional and contractor. This is an approach similar to the one taken in design/build documents developed by the EJCDC.” (Building Design & Construction October 1996)

In contrast, the appearance of certain organizations and their creation of contract documents, as discussed in Chapter 2.7, may contend to be reactionary to the evolution of the AIA published documents. For illustration, the AIA B141, a component of the AIA family of contract documents, is the agreement directly contracting the owner and the architect. As this chapter has explained types of *change* in provisions, the following example of Figure 4 and 5 illustrate the COAA contract provisions (Figure 5) created to counterbalance the effects of *change* in an AIA contract provision (Figure 4):

AIA B141 1987 Edition	AIA B141 1997 Edition
<p>1.1.2 The Architect's services shall be performed as expeditiously as is consistent with professional skill and care and the orderly progress of the Work. Upon request of the Owner, the Architect shall submit for the Owner's approval a schedule for the performance of the Architect's services which may be adjusted as the Project proceeds, and shall include allowances for periods of time required for the Owner's review and for approval of submissions by authorities having jurisdiction over the Project. Time limits established by this schedule approved by the Owner shall not, except for reasonable cause, be exceeded by the Architect or Owner.</p>	<p>1.2.3.2 The Architect's services shall be performed as expeditiously as is consistent with professional skill and care and the orderly progress of the Work. Project. Upon request of the Owner, the Architect shall submit for the Owner's approval a schedule for the performance of the Architect's services which initially shall be consistent with the time periods established in Subparagraph 1.1.2.6 and which shall may be adjusted, if necessary, as the Project proceeds, and this schedule shall include allowances for periods of time required for the Owner's review, for the performance of the Owner's consultants, and for approval of submissions by authorities having jurisdiction over the Project. Time limits established by this schedule, approved by the Owner shall not, except for reasonable cause, be exceeded by the Architect or Owner.</p>

Figure 4: Incremental Changes regarding the Architect's Responsibility demonstrated in AIA B141. (Stover 1997)

COAA
<p>1.2.1 The Professional understands and acknowledges that time is of the essence in completion of the Project and the Owner will incur damages if the Project is not completed on time. The Professional shall at all times carry out its duties and responsibilities as expeditiously as possible and in accordance with the Project Design Schedule and all other applicable schedule (s).</p>

Figure 5: COAA's corresponding Contract Provision to AIA provision in Figure 4. (Verwys and Braun 2000)

COAA comments on the formation of their provision:

"The AIA provision permits the Professional to argue that its delays are the result of "professional skill and care"; the COAA provision does not. Furthermore, the COAA document obtains the Professional's acknowledgement that delay does have adverse financial consequences to the Owner." (Verwys and Braun 2000, p. 6)

Many owners look to the architect to shoulder a great deal of the responsibility for the implementation of a project. AIA's owner-architect agreement and general conditions appear to give architects a great deal of authority to protect owners. But, some contend that,

"Difficulties arise, however, from the absence of clear language making it the architect's duty to protect the public owner and in the abundance of language that minimizes the architect's responsibility." (Cook and Paulk 1995)

Furthermore, it is believed that,

“COAA’s comparison of its document with AIA’s has crystallized many of these resentments into a biting but thorough critique that goes to the core of the issue: The role of the architect has shrunk so much to avoid the legal hazards of practice that many owners are dismayed. While AIA may see the COAA documents as the result of bungling or cupidity, we tend to see them as a reasonable response to the ever-narrowing parameters of architectural practice.” (Korman, 2000)

To further illustrate, AIA documents provide for arbitration between contractors and owners. The following Figures 6 and 7 illustrate the evolution of AIA’s arbitration provision and the effect on the creation of corresponding COAA provision.

AIA B141 1987 Edition	AIA B141 1997 Edition
[new provision in 1997 edition]	1.3.5.1 Any claim, dispute or other matter in question arising out of or related to this Agreement shall be subject to arbitration. Prior to arbitration, the parties shall endeavor to resolve disputes by mediation in accordance with Paragraph 1.3.4.

Figure 6: An Evolutionary Change regarding Dispute Resolution Method (Arbitration) demonstrated in AIA B141. (Stover 1997)

COAA
4.6 In case of a dispute relating to the Project, or arising out of this Contract for Professional Services, no party to this Contract For Professional Services shall be required to participate in or be bound by, any arbitration proceedings.

Figure 7: COAA’s corresponding Contract Provision to AIA Provision in Figure 6. (Verwys and Braun 2000)

COAA comments on the formation of their provision:

“Under the AIA documents, the Owner must arbitrate a claim if the Professional demands it. Under the COAA documents, the Owner cannot be compelled to arbitrate any dispute which it does not choose to arbitrate.” (Verwys and Braun 2000, p. 11)

Cook and Paulk discuss the arbitration issue further:

“They [AIA] exclude architects from the arbitration process, thus leaving out one of the parties frequently involved in disputes. Consequently, public owners, if given a choice, may opt for the courts rather than arbitration...Most of the objections to arbitration can be solved by changes in arbitration clauses. Nevertheless, public owners may be encouraged to refrain from using arbitration clauses in their contracts.” (Cook and Paulk 1995)

Or, in the case of COAA documents, the owner’s options are not narrowly mandated.

Chapin stated in an interview that the depleting the responsibility of the architect (as illustrated in Figure 4 and 5) and the arbitration revision (as illustrated in Figure 6 and 7) were of key concern and led to the interest of their membership to develop their own contracts. Furthermore, Chapin stated,

“AIA redefines responsibility with their revisions. The one who controls the risk should be responsible. Risks distribution is the biggest reason for the creation of our contract documents.” (Chapin 2001)

As the incremental changes to the AIA documents are made, the evolution of the role of the architect is perceived by entities, like COAA, AGC, and CMAA in particular, as diminished, less responsible, and less accountable. Thus, the creation of new contracts are meant to

“restore architects to the role of master builders by more clearly detailing what designers do and by holding them to a standard of performance.” (Korman 2000) Furthermore, they are meant to send a different message than is supposed by the incremental changes in the AIA document evolution: “the message [is] contained in the new model contracts—that designers must be held accountable for their performance.” (Korman 2000)

2.9 INTENT AND SPIRIT OF A CONTRACT

There is a substantial body of literature in the subject area of *intent and spirit* of a contract. Webster's New World Dictionary defines “intent” as,

an adjective: 1) firmly directed; earnest, 2) having one's attention or purpose firmly fixed; and as a noun: purpose or meaning. (Webster's New World Dictionary 1998)

The construction contract identifies important roles, defines the relationships, and the parties' responsibilities and obligations to others and the project. As discussed in Chapter 1 of this dissertation, the contract sets the rules of the game and how it will be played.

The difficulty is interpreting the contract: what do the words or actions mean, and what did the parties intend to contract? Amongst the tumultuous array of disputes and claims, the procedures and provisions should be guided by the *intent*. Bennett cites,

A contract must be interpreted as a whole, with its meaning taken from the entire context rather than from particular portions or clauses. (Bennett 1996, p. 267)

Courts attempt to give a reasonable, “common sense,” interpretation to contracts.

“The joint *intent* of the parties will prevail if it can be ascertained. That is, the court will be primarily concerned with trying to determine what the parties intended, based on the surrounding facts and circumstances and the oral or written words. Custom and usage may be used to determine the *intent* of the parties when the content of the contract is silent or ambiguous with respect to certain terms.” (Bennett 1996, p. 266-267)

Yet, at the same time, Justin Sweet and Jonathan Sweet assert the following observation,

“Usually the law looks for any common *intention* of the parties, employs canons of interpretation, and, when nothing else is available, interprets any ambiguities against the party that caused them to exist, usually the party who drafted or provided the contract...if we cannot find any common *intention* of the contracting parties or useful canons of interpretation, should we look at the AIA's *intention*, assuming we could find it...The judge may ask, ‘What did the AIA have in mind?’...When we consider A101/201, the problem, as before, becomes more complicated...The problem...is the difficulty of finding evidence of *intention*...Do we look at the *intention* of the original drafter, who is probably unknown or unavailable, or the latest AIA/AGC joint task force committee...This would be a useless and hopeless task. We would best not search for the *intention* of the AIA.” (Sweet and Sweet 1996)

When we consider AIA A201 construction contract documents, the problem becomes more complicated. We could conclude that the state or the common law has delegated to the AIA the task of improving contracting practices by standardizing terms in a reasonably fair way. Alternatively, the users of AIA documents can be said to have delegated to AIA and AGC the power to legislate on their behalf. AIA wants us to believe that by use of the A-series documents (i.e., A201), each party (architect and contractor) manifested its assent to terms made by its authorized representatives. Thus, we could consider the AIA a surrogate for the absent owner. (Sweet and Sweet 1996)

Scholars do agree that there must have been an original *intent* (e.g. purpose). To some scholars, it appears that the original *intent* of contract provisions has been lost. If the perception is that the original *intent* is honored by the contract, maybe the original *intent* does not apply in these times. Maybe, the *intent* has changed due to the changing times. There have been changes to the contract (an evolution). Changes may have caused *intent* to be lost. Scholars agree that initially “the courts seek to determine the *intention* of the parties and enforce the contract in accordance with that *intention*.” (Sweet, Bartholomew, Clough and Sears, et al) If *intent* is lost, common law and rules are used for interpreting, rather than *intent* for interpreting. One of the effects of change is that *intent* becomes obscure, and therefore, interpretation more difficult. If interpretation is more difficult, successful performance (a quality project within budget, on time, and under a safe working environment) under the contract could be more difficult to obtain.

2.10 ROLE OF THE ARCHITECT/DESIGN PROFESSIONAL IN THE CONSTRUCTION PHASE AND CONTRACT ADMINISTRATION DURING CONSTRUCTION

General conditions of contract, discussed in Chapter 2.8, include provisions pertaining to many issues, particularly: defining roles, rights, responsibility, accountability, and authorities of the members of the construction team. For the traditional contracting arrangement (e.g. design-bid-build), standard documents, like AIA A201 (the focus of investigation in this study), are available, accepted, and widely used, because it is believed that

“they establish a nationally accepted norm for the allocation of responsibilities and authority among the various participants of design and construction teams.” (Manual of Professional Practice 1988, p. 107)

As stated in Chapter 1.8, the scope of the investigation for this dissertation was on the traditional contracting system of design-bid-build. This arrangement involves the construction team of three principal parties (the trichotomy introduced in Chapter 1.1): the owner, design professional/architect, and contractor. The Manual of Professional Practice states,

“The construction plan is established by the construction contract documents and executed by the construction team. When the traditional arrangement is used, the design professional’s role is established by contract with the owner. Technically, the design professional’s contract with the owner is not one of the construction contract documents. The construction contract defines the roles of the constructor, owner, and design professional.” (Manual of Professional Practice 1988, p. 107)

In the construction industry, the construction contract (discussed in Chapter 2.3) identifies for the construction team the important roles, defines the relationships, and the parties’ responsibilities and obligations to others and the project. The owner’s role is paramount to the construction phase.

“The construction owners for whom the work is done and without whom there would be no construction industry constitute...an important segment. This group is the source of the money that drives the industry.” (Bartholomew 1998, p.2)

The contractor is obviously a key participant on the construction team, as well.

“The distinctive function of the prime contractor is to coordinate and direct the activities of the various parties and agencies involved with the construction and to assume full, centralized responsibility to the owner for the deliver of the finished project within the specified time.” (Clough and Sears 1994, p.13)

The investigation of this dissertation focused on the *role of the architect*. Typically, the architect, also known as the design professional, is the party, organization, or firm that designs the project. Because most designs are architectural or engineering in nature, often the term architect-engineer is used to refer to the design professional, as well. In this dissertation, the design professional under consideration was the architect. In addition to the design work, the architect can occupy a variety of positions on the construction team with respect to the owner for whom the design is done. The architect or design professional acts essentially as an independent contractor during the design phase and as an agent of the owner during the construction operations.

“The architect acts as a professional intermediary between the owner and the contractor and represents the owner in matters of construction contract administration. Under such contractual arrangements, the owner, architect, and contractor play narrowly defined roles, each performing a particular function...” (Clough and Sears 1994, p. 13)

During the construction, the architect represents the owner in the administration of the contract and acts for the owner during the day-to-day construction operations. The architect's jurisdiction and limitations are bounded by the terms of the construction contract, as established by the provisions of the general conditions. The architect is a construction team member that derives rights and authorities over the construction phase from the general contract between the owner and the prime contractor, e.g. AIA A201.

2.10.1 DEFINED CONTRACTUAL ROLE OF THE ARCHITECT/DESIGN PROFESSIONAL

Article 4 of AIA A201 (1997), “Administration of the Contract,” defines the specific functions required in the contractual *role of the architect*. Below is a general summary of the *role of the architect* as defined in AIA A201:

“The Architect will provide administration of the Contract as described in the Contract Documents, and will be an Owner’s representative (1) during construction, (2) until final payment is due and (3) with the Owner’s concurrence, from time to time during the one-year period for correction of Work...”

The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents...

The Architect, as a representative of the Owner, will visit the site at intervals appropriate to the stage of the Contractor’s operations (1) to become generally familiar with and to keep the Owner informed about the progress and quality of the portion of the Work completed, (2) to endeavor to guard the Owner against defects and deficiencies in the Work, and (3) to determine in general if the Work is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will neither have control over or charge of, nor be responsible for, the construction means, methods, techniques, sequences or procedures, or for the safety

precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents...

The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities perform portions of the Work...

The Architect will review and certify the amounts due the Contractor and will issue Certificates for Payments in such amounts...

The Architect will have authority to reject Work that does not conform to the Contract Documents...

The Architect will have authority to require inspection or testing of the Work...

The Architect will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents...

The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures...

The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work...

The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion, will receive and forward to the Owner...

The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents...

Interpretations and decisions of the Architect will be consistent with the intent of and reasonably inferable from the Contract Documents...When making such interpretations and initial decision, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions so rendered in good faith...

The Architect will review Claims...

The Architect will approve or reject Claims [which] shall be final and binding on the parties but subject to mediation and arbitration." (AIA A201 1997, p. 18-24)

With the knowledge of these basic functions outlined in the AIA A201, the investigation for this study characterized the various functions required in the *role of the architect* as follows:

- **Primary lead** role: The architect plays the principal role in the work required for contract administration during the construction phase.
- **Quasi-judicial** role: The architect plays the central role in deciding disputes, judging claims and quality of work, and acts as an arbiter in contract administration during the construction phase.
- **Secondary support** role: The architect provides assistance to the work required for contract administration during the construction phase.
- **Supervisory** role: The architect performs a "managerial" role in contract administration during the construction phase.
- **Reviewer** role: The architect conducts reviews of the work required for contract administration during the construction phase.
- **Advisory** role: The architect acts only as an advisor to the contractual parties in contract administration during the construction phase.

2.10.2 DEGREE OF PARTICIPATION

Over time, as the AIA A201 has evolved, the various functions defined by the general conditions of contract has taken on an altering degree of participation required by the role of the architect in contract administration during the construction phase. As cited in Chapter 2.8, the construction industry's rules, players, and practices have evolved. General conditions of contract, like AIA A201, set out to mirror industry practices. Industry participants, technology, and legislation induce change in contractual relationships. As industry practices change, so do the contracts that define the rights, roles, responsibilities, accountability, and authority of the parties, and the "rules of the game". As a result, construction contracts have correspondingly evolved in size and in context, as described in Chapter 2.6 on the history of AIA A201 and demonstrated in Chapter 2.8.2 on change in provisions.

This research investigation distinguished the *role of the architect* presented in the previous section, Chapter 2.10.1, as follows:

- *Active* degree of participation
 - Primary Lead Role
 - Quasi-Judicial Role
- *Neutral (Mid)* degree of participation
 - Secondary Support Role
 - Supervisory Role
- *Passive* degree of participation
 - Reviewer Role
 - Advisory Role

Figure 8 is a matrix of the categories of the various roles and definitions of function (Chapter 2.10.1), and the degree of participation (Chapter 2.10.2) of the architect, as defined and used for this study.

Degree of Participation	Category of Role	Definition of Function	Example
<i>Active</i>	Primary lead	The architect plays the principal role in the work required for contract administration during the construction phase.	"The Architect will have authority to require inspection or testing of the Work..."
	Quasi-judicial	The architect plays the central role in deciding disputes, judging claims and quality of work, and acts as an arbiter in contract administration during the construction phase.	"The Architect will interpret and decide matters concerning performance..."
<i>Neutral (Mid)</i>	Secondary support	The architect provides assistance to the work required for contract administration during the construction phase.	"The Architect will prepare Change Orders..."
	Supervisory	The architect performs a "managerial" role in contract administration during the construction phase.	"The Architect will provide administration of the Contract..."
<i>Passive</i>	Reviewer	The architect conducts reviews of the work required for contract administration during the construction phase.	"The Architect will review Claims..."
	Advisory	The architect acts only as an advisor to the contractual parties in contract administration during the construction phase.	"The Architect, as a representative of the Owner, will...become generally familiar with and to keep the Owner informed about the progress and quality of the portion of the Work..."

Figure 8: Matrix of the Roles of the Architect, Functions of the Roles, and Degree of Participation during the Construction Phase

2.11 VALUE-ADDED BENEFIT OF THE ARCHITECT/DESIGN PROFESSIONAL

As mentioned in Chapter 1.2, “Purpose Statement”, this research study ultimately leads to an enhanced knowledge of the owner’s perception of the value-added benefit by the design professional during construction. “The owner, public or private, is the instigating party for whose purposes the construction project is design and built.” (Clough and Sears 1994, p. 3)

During the construction phase and contract administration, the owner’s views of the architect/design professional’s functions are typically considered along these lines:

“Architects add value when they serve as strategic allies, provide expert knowledge, organize facility delivery, merge design and construction processes and compress time by stepping outside of traditional roles.” (Westlake and McKee 2001, p. 453)

“Owners rely on an architect who can provide accurate budgets and who has the talent to point out the viable options—the talent to summarize a plan, quantify the value decisions that inevitably arise along the way, and then coordinate and deliver the end result.” (Westlake and McKee 2001, p. 453)

“In addition to interpreting the drawings, an architect is experience in reviewing the acceptability of construction [drawings], your [the owner’s] architect is on the jobsite to be an additional, professional set of ‘eyes and ears’ to intentions of your project are actually being carried out, and in a proper manner. Your architect is [evaluates] contractor’s pay requests for correctness and accuracy, as well as making sure that you [the owner] get appropriate protection.” (Westlake and McKee 2001, p. 453)

One of the leading owner organizations, COAA, states that it is dedicated to helping owners bring balance to the construction phase, and develop the leadership skills and knowledge to integrate and facilitate the various parties (the owner, the design professional/architect, and the contractor) involved in the process. COAA comments:

“The AIA provision permits the [Design] Professional to argue that its delays are the result of ‘professional skill and care’; the COAA provision does not. Furthermore, the COAA document obtains the Professional’s acknowledgement that delay does have adverse financial consequences to the Owner.” (Verwys and Braun 2000, p. 6)

COAA purposes that one of its aims is to assist both public and private owners to develop as leaders in the construction phase in order to foster balance between the participants and create equity in the risks and rewards.

At the same time, the leading architect organizations, AIA, consider that many owners look to the architect to shoulder a great deal of the responsibility for the implementation of a project. AIA’s owner-architect agreement (B141) and general conditions (AIA A201) give architects a great deal of authority to protect owners. But, “Difficulties arise, however, from the absence of clear language making it the architect’s duty to protect the public owner and in the abundance of language that minimizes the architect’s responsibility.” (Cook and Paulk 1995)

The AIA Context-Based Research Group produced a research study called *The Client Experience, 2002* that shows how clients [owners] articulate what they believe architects are and what they do—and that it does not match how architects’ perceive themselves and what they actually do. The results of the study, *Thinking Like a Client*, reports:

“When construction begins...most clients would like architects to be heavily involved, as constant communication is critical to this phase. Many clients report that architects demonstrate their value in unexpected ways during the build phase through flexibility and creative problem solving. Architects, who perceive themselves as flexible and creative problem solvers, are often surprised to learn that clients find their flexibility and creativity surprising. (*Thinking Like a Client* 2003, p. 1)

The research for this dissertation differs from the above study, such that this research is investigating the perceptions of owners on the value-added benefit of the architect against evolutionary changes in key contract provisions. The above study investigated the perceptions of owners on the value-added benefit of the architect against the perception of architects on the value-added benefit of architects.

During construction,

“It is also common for communication to break down between the architect and the contractor, when plans must be change to accommodate unexpected problems. As the architect and the contractor argue over culpability, the client is placed in the uncomfortable role of mediator...The public generally perceives architects favorably. Clients’ negative perceptions of architects...are based largely on actual negative experiences of working with an architect...most clients perceive architects as having been inadequately prepared during their architectural education to work collaboratively with clients, properly manage a business, and understand the construction process.” (*Thinking Like a Client* 2003, p. 1)

“These perceptions present both formidable challenges and promising opportunities. Negative attitudes and beliefs rooted in experience, not assumptions, are firmly held and difficult to change. However, the fact that clients hold ‘the profession’ and not the individual responsible for perceived deficiencies means that clients’ perceptions are highly amenable to change as a result of positive personal experience. The research reveals that architects have significant opportunities to meet and exceed client expectations. Expanding on recognized strengths, architects can transform clients’ perceptions and come be recognized as long-term partners who add value” [during the construction process and contract administration.] (*Thinking Like a Client* 2003, p. 1)

This research investigated the AIA A201 to understand the evolutionary process from one edition to the next by describing the change in key provisions, and described the effect that change has had on the function performed by the design professional/architect during construction. Under the current conditions of customs and practice and the revisions of AIA A201 from 1951 to 1997, by its investigation, this dissertation ultimately contributes to a discussion of the owners’ perception regarding the value-added benefit of the function performed by and/or role of the design professional/architect during construction.

3 RESEARCH DESIGN AND METHODOLOGY

This chapter briefly summarizes the proposed framework and process for the investigation of this dissertation. A research design is a clearly planned procedure for carrying out the investigation of the hypotheses. This chapter outlines the research design by providing a brief description of each of the three-phase methodology for implementing the investigation of this dissertation.

3.1 GENERAL FRAMEWORK

This dissertation examined the AIA A201, firstly, to understand the evolutionary process from one edition to the next by describing the change in key provisions, and then, to describe the effect that change has had on the function performed by the design professional. The overall purpose of the research for this dissertation was to investigate the changes to key contract provisions in AIA A201 and to describe the impact those incremental changes have had on the owner's perception of the value-added benefit by the architect/design professional during the construction and in the administration of the construction contract.

This study was designed to conduct the investigation in an organized three-phase methodology. This chapter succinctly outlines the methodology of each phase, and its corresponding research question addressed, the hypothesis examined, and the objective accomplished. Each of the three phases is covered at length in Chapter 4, 5, and 6, respectively.

3.2 PHASE I: IDENTIFICATION OF THE KEY PROVISIONS OF AIA A201 THAT HAVE CHANGED OVER TIME

3.2.1 QUESTION OF PHASE I

Q1) What key provisions have had substantive changes over time that had an effect on the construction phase and the contract administration?

3.2.2 HYPOTHESIS OF PHASE I

H1) Change has occurred in key provisions relating to the construction phase and contract administration in the AIA A201 contract document from 1951 to 1997.

3.2.3 OBJECTIVE OF PHASE I

Obj 1) To identify key provisions of construction contract documents and the respective substantive changes to each provision that may have had an effect on the function of the design professional during the construction phase and contract administration.

3.2.4 METHODOLOGY OF PHASE I: DESK RESEARCH

To accomplish the first objective of this dissertation, Desk Research (also known as Documentary Research) was the first technique used. There are two main approaches to Desk Research, which this study utilized in combination:

1. To examine data which is available, and then to build a research project around that data.

2. To develop a research design, and then to seek out any existing data which may be helpful. (Oliver 1997)

Researchers find that the advantages to using the Desk Research approach are:

- The data cannot be collected any other way
- A lot of time can be saved
- A large amount of detailed data may be available
- The data can help to develop research ideas
- The data can be qualitative or quantitative

Researchers find that disadvantages to using the documentary research approach are:

- Using approach one as stated above: If one builds the research around existing data, the research may not exactly cover the topic that originally intended for investigation. The available data could control the research design too much, and the research may not have sufficient precision and focus.
- Using approach two as stated above: The research parameter and the variables are pre-defined. The demands on the data may be too narrow to take advantage of available data, because one may not find the exact type of data needed to support the investigation. (Oliver, Neuman, Creswell, et al)

Both the advantages and disadvantages held true during this phase of the investigation. Chapter 4 provides an in-depth report on the implementation of Phase I of the three-phase research methodology.

3.2.4.1 SAMPLING POPULATION

The methodology of Phase I sets out to support the hypothesis (“Change has occurred in key provisions relating to the construction phase and contract administration in the AIA A201 contract document from 1951 to 1997”), where the independent variable is time from 1951 to 1997 and the dependent variable is change in key provisions. To be more specific, Phase I of this dissertation examined, by Desk Research, the AIA general conditions of contract (from 1888 to 1997) to understand the evolutionary process (change) and to identify key provisions (particularly, from 1951 to 1997) that have had substantive changes that affect the construction phase and the contract administration.

3.2.4.2 DATA AND RESULTS

Oliver states that the Desk Research approach uses as data the personal, subjective accounts of documents, literature, and people’s lives and experiences. The Desk Research for this dissertation was conducted on data from the following:

- Contract documents
- Archival materials
- Historical documents
- Legal documents
- Newspapers and journals

The product of the Desk Research of Phase I resulted in a list of key provisions and their respective significant changes, recounted in Chapter 4. Subsequently, the results of the Desk Research provided

for the input material to be used in the implementation of Phase II of the three-phase research methodology, detailed in Chapter 5.

3.3 PHASE II: AN EXAMINATION OF CHANGES IN THE FUNCTION OF THE ARCHITECT/DESIGN PROFESSIONAL AS A RESULT OF CHANGES IN THE AIA A201

3.3.1 QUESTION OF PHASE II

Q2) Have changes in the key provisions of general conditions affected the function of the design professional during the construction phase and the contract administration?

3.3.2 HYPOTHESIS OF PHASE II

H2) Changes made to key provisions of AIA A201 have had a material effect on the function performed by the architect/design professional during the construction phase and contract administration.

3.3.3 OBJECTIVE OF PHASE II

Obj 2) To examine the effect change has had or not had on the function of the design professional's degree of participation required to properly and successfully perform the design professional's assumed duties and responsibilities during the construction phase and contract administration.

3.3.4 METHODOLOGY OF PHASE II: SURVEY QUESTIONNAIRE

Survey research is a research methodology in which data is collected in a systematic way from, usually, a relatively large population. In this approach, many people are asked the same questions, and then the responses are recorded, analyzed, and interpreted. And, the information obtained is usually summarized in percentages, tables, or graphs.

Surveys are employed to measure:

- The extent to which an attitude, lifestyle or social custom is present in a population
- The development of trends in a population
- The characteristics of a particular population, e.g., those individuals in a single profession or type of employment. (Oliver 1997)

“Surveys are appropriate for research questions about self-reported beliefs or behaviors.” (Neuman 2000, p. 247) For this dissertation, the notion is that with the participation of well-informed individuals, the investigation was enhanced by their insights and experiences obtained from a survey questionnaire. Neuman suggests that surveys most appropriately measure:

- Behavior
- Attitudes/beliefs/opinions
- Characteristics
- Expectation
- Self-Classification
- Knowledge

The survey of Phase II intended to ascertain industry opinions on provisions of AIA A201 that have demonstrated change over time (as described in Chapter 2.8.2); and, whether or not the identified provisions are “key” to construction and contract administration (as described in Chapter 2.8.1), as well as ascertain views on the significance of change to these provisions on the effect the provisions have on the function of the architect during construction (as discussed in Chapter 2.11).

Furthermore, “descriptive researchers use most data-gathering techniques, such as surveys, document research, field research, content analysis, and historical-comparative research.” (Neuman 2000, p. 22) Like the research in this dissertation, descriptive research “paints a picture” with words or numbers, presents a profile, outlines stages, or classifies types. In descriptive research, the researcher begins with a well-defined subject [change in key provisions] and conducts research to describe it [effect on construction and contract administration and the function of the architect].

Survey techniques are often used in descriptive research for the following reasons:

- A lot of data can be collected by means of a single questionnaire
- Data can be collected from a large number of people
- Respondents can be contacted when they are at a distance
- Data can easily be quantified
- Surveys are relatively efficient in terms of time (Oliver, Neuman, Creswell, Friedman)

The difficulties of survey research are:

- Low response rates
- Costs
- Access to participants
- Design of questions

Despite the difficulties, the primary research technique to gather data to accomplish the objective of Phase II of this dissertation is by survey research for the reasons stated above. Chapter 5 of this dissertation reports in detail on the procedures, implementation, and outcome of the survey questionnaire utilized in Phase II. The chapter covers the responses (data) recorded and provides a three-step statistical analysis of the data.

3.3.4.1 SAMPLING POPULATION

The methodology of Phase II sets out to support the hypothesis (“Changes made to key provisions of AIA A201 have had a material effect on the function performed by the architect/design professional during the construction phase and contract administration”), where the independent variable is change in key provisions and the dependent variable is the function of architect/design professional. To be more specific, Phase II of this dissertation examines the identified key provisions (determined in Phase I) and the respective effect change has had or not had on the function of the design professional to properly and successfully perform during the construction phase and contract administration.

For this dissertation, the survey research, as described above, involved a sample of industry experts to participate, i.e. architects, engineers, general contractors, construction managers, academics, lawyers, and owners. The target population was people who are classified as active, experienced participants in the construction phase, either in the public or private sector. Each person was considered to have a familiarity with

the intention and use of the AIA A201 and have different experiences based on their years in the industry, their role in the industry, and the sector the industry they represent.

The source of the sample was obtained from the dissertation committee members. To create a list of possible respondents, a contact lists was provided by the dissertation committee members, which consisted of colleagues of the architect/engineering/construction industry, departmental advisory boards, and organization affiliations. The target population was categorized into three (3) groups: architects/engineers, general contractors/construction managers, and legal professionals.

“The question of sample size can be addressed in two ways. One is to make assumptions about the population and use statistical equations about random sampling processes...a second and more frequently used method is a rule of thumb-a conventional or commonly accepted amount.” (Neuman 2000, p. 217)

Given the quantity of contacts provided by the committee in congruence with the three categories, the contact list ended up with seventy-five (75) individuals, where there were twenty-five (25) in each of the groups. The researcher concluded to use for the research sample the entire small homogeneous population of 75 industry professionals.

“Smaller samples are sufficient when...the population is homogeneous, or when only a few variables are examined at a time. (Neuman 2000, p. 217)

Furthermore, the anonymity and confidentiality of all participants was maintained throughout the study. The researcher and dissertation committee members are the only persons with access to the names of those participating in the study.

3.3.4.2 DATA AND RESULTS

In brief, this section discusses the nature of the data and the type of results. Chapter 5 thoroughly details the responses recorded, and provides an analysis and interpretation of the data. The data was collected and the results reported by descriptive and statistical analysis. Descriptive statistics, a general type of simple statistics used to describe basic patterns in the data, summarize the characteristics of the participants and the overall survey results. As discussed in Chapter 3.3.4, the outcome of a descriptive study is a detailed picture of the subject. For example, results may indicate the percentage of people who hold a particular view or engage in a specific behavior.” (Neuman 2000, p. 22) Also, frequencies, means, medians, and standard deviations are all examples of descriptive statistics that define characteristics of the data.

In addition, with the assistance of Konstantin Gartvig, a consultant at George Washington University's Department of Statistics, and use of the statistical software program, *SPSS Student Version 12.0* the statistical analysis employed are the widely used methods, such as Single-Sample T-test, parametric Paired Sample T-test, and non-parametric Wilcoxon Test for Two Related Samples to statistically check the research hypotheses investigated in the survey questionnaire of Phase II. First, the Single Sample T-test procedure tested whether the mean of a single variable (response for the questions where there was no comparison) differs from a specified constant. In these lines of questioning, the survey is investigating whether the respondents on average agree with a given statement or disagree with the given statement (e.g. a Likert - scale from "Strongly Agree" to "Strongly Disagree"). This methodology tests whether the average score for the respondents differs from the

specified constant of a neutral value (meaning, “neither agree nor disagree”). For this dissertation, the statistical test of these questions and corresponding responses translate to a null hypothesis that respondents on average are neutral (nor ‘agree’ nor ‘disagree’) towards the issue in question and the alternative hypothesis is that they express an opinion on the issue skewed in the direction of ‘agreement’ or ‘disagreement’.

The single variable questions utilized are in Part III Questions (2) i and (2) ii throughout *Phase II Survey Questionnaire*, for example:

(2) Identify to what extent you agree or disagree with the following statements regarding comparing the contract language from 1951 and 1997. (Check only one box)

- i. The evolution of the AIA A201 DISPUTE RESOLUTION provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.**

- Strongly Agree
- Somewhat Agree
- Neither Agree nor Disagree
- Somewhat Disagree
- Strongly Disagree
- No Opinion

- ii. The evolution of the AIA A201 DISPUTE RESOLUTION provision from 1951 to 1997 has directly affected the function of the Architect.**

- Strongly Agree
- Somewhat Agree
- Neither Agree nor Disagree
- Somewhat Disagree
- Strongly Disagree
- No Opinion

For recording purposes, the actual survey questions were renumbered in sequential order. Therefore,

<u>Survey Question</u>	=	<u>Sequential Order of Survey Question</u>
7a (2) i	=	Q9
7a (2) ii	=	Q10
7b (2) i	=	Q13
7b (2) ii	=	Q14
7c (2) i	=	Q17
7c (2) ii	=	Q18
7d (2) i	=	Q21
7d (2) ii	=	Q22
7e (2) i	=	Q25
7e (2) ii	=	Q26
7f (2) i	=	Q29
7f (2) ii	=	Q30
7g (2) i	=	Q33
7g (2) ii	=	Q34

The Paired Sample T-test procedure compares the means of two variables for a single group. During the paired-sample test, computation is done to measure the differences between values of the two variables for each question, measured on the same group of subjects, and at the same time, tests whether the average difference for all respondents significantly differs from zero (0). For example, in this study, all respondents are measured regarding two (2) questions about the state of affairs in the same area at different moments of time, e.g. 1951 and

1997. Thus, each respondent has two (2) measured variables, usually called 'before' (1951) and 'after' (1997) measures. For each pair of variables, the Paired Sample T-test calculates for each respondent the average difference in means, between the 'before' and 'after' measures, and provides the test statistic of the average for all respondents, which can be interpreted to test the initial hypothesis.

The two variable questions utilized are in Part III Questions (1) throughout *Phase II Survey Questionnaire*, for example:

- (1) Based on the language above, indicate by marking one (X) in the appropriate column, which of the following statements most accurately reflects the role played by the Architect in the **DISPUTE RESOLUTION** for each of the specified years (*for example, if based on the comparative language above you conclude that under the 1951 provision the Architect “plays a primary lead role during the construction phase”, place an “X” on line 1 in the 1951 column; and, if you conclude that under the 1997 provision the Architect “plays an advisory role during the construction phase”, place an “X” on line 5 in the 1997 column*):

THE ROLE OF THE ARCHITECT	IN THE YEAR OF:	
	1951	1997
1. The Architect plays a primary lead role in dispute resolution during the construction phase		
2. The Architect plays a secondary support role in dispute resolution during the construction phase		
3. The Architect plays a supervisory role in dispute resolution during the construction phase		
4. The Architect serves as a reviewer role in dispute resolution during the construction phase		
5. The Architect plays an advisory role in dispute resolution during the construction phase		
6. The Architect plays a quasi-judicial role in dispute resolution during the construction phase		

For analysis purposes, the example of the above matrix translates into two (2) questions:

Q1. Based on the contract language provided, the following statement most accurately reflects the 1951 role played by the Architect in the **DISPUTE RESOLUTION contract provision...**

Q2. Based on the contract language provided, the following statement most accurately reflects the 1997 role played by the Architect in the **DISPUTE RESOLUTION contract provision...**

For recording purposes, the actual survey questions were renumbered in sequential order. Therefore,

<u>Survey Question</u>	=	<u>Sequential Order of Survey Question</u>
7a (1)	=	Q7 & Q8
7b (1)	=	Q11 & Q12
7c (1)	=	Q15 & Q16
7d (1)	=	Q19 & Q20
7e (1)	=	Q23 & Q24
7f (1)	=	Q27 & Q28
7g (1)	=	Q31 & Q32

For the questions tested by the Paired Sample T-test, the data that the study is dealing with is measured on the ordinal non-continuous scale and as a parametric test, an assumed normal distribution of the data. Therefore,

it was reasonable to support the results with a non-parametric method, a procedure that compares the distributions of two variables, particularly the medians of the distributions without an assumed distribution. The medians are compared as measures of central tendency, instead of the means; since means do not provide accurate representation of the actual distribution when using the Likert-scale. Essentially, this procedure provides a more conservative result, because the analysis is independent of the distribution of the data. So, for this study, the paired populations (e.g. responses for the same question about 1951 and 1997) were tested using the Wilcoxon signed-rank test to support or devaluate earlier results of the Paired Sample Ttests. Notably, the results showed that the conclusions of the analysis were consistently supported both by the parametric Paired Sample T-tests and non-parametric Wilcoxon tests.

Chapter 5 provides a complete report on Phase II. It presents the survey instrument used in Phase II (Chapter 5.5.1), reports on the data obtained and recorded (Chapter 5.5.3 and 5.5.4), and provides a three-step statistical analysis of the results (Chapter 5.6).

3.4 PHASE III: A DESCRIPTION OF THE IMPACT ON THE OWNER'S PERCEPTION OF THE VALUE-ADDED BENEFIT BY THE ARCHITECT/DESIGN PROFESSIONAL AS A RESULT OF CHANGES IN THE AIA A201

3.4.1 QUESTION OF PHASE III

Q3) Have changes in the function of the design professional, as a result of changes in AIA A201, impacted owners' perception of the value-added benefit by the design professional during the construction phase and the contract administration?

3.4.2 HYPOTHESIS OF PHASE III

H3) Changes in the function performed by the architect/design professional during construction and contract administration are perceived by owners as having significantly affected the value-added benefit by the architect/design professional during the construction phase and contract administration.

3.4.3 OBJECTIVE OF PHASE III

Obj 3) To ascertain the impact that changes to the functions performed by the design professional have had or not had on owners' perception of the value-added benefit by the design professional during the construction phase and contract administration.

3.4.4 METHODOLOGY OF PHASE III: SURVEY QUESTIONNAIRE

To complete the three-phase methodology of this dissertation, the primary research technique to accomplish the objective of Phase III is by survey research, as outlined in Chapter 3.3.4 for Phase II. Phase III surveys are employed to measure attitude, beliefs, opinions, and expectations present in the owner-population in the construction industry. Same as the earlier phases of the research, in Phase III, the researcher began with a well-defined subject [function of the architect/design professional] and conducts research to describe it [owner's perception of the value-added benefit by the architect/design professional]. The characteristics of this particular

population, i.e. their needs and expectations, are surveyed along with the development of trends, i.e. the changing (or constant) perception of the value-added benefit of the design professional.

Chapter 6 of this dissertation reports in detail on the procedures, implementation, and outcome of the survey questionnaire utilized in Phase III. Chapter 6.5.3 and 6.5.4 cover the description of the data recorded and Chapter 6.6 provides a three-step statistical analysis of the data.

3.4.4.1 SAMPLING POPULATION

The methodology of Phase III sets out to support the hypothesis (“Changes in the function performed by the architect/design professional during construction and contract administration are perceived by owners as having significantly affected the value-added benefit by the architect/design professional during the construction phase and contract administration”), where the independent variable is function of architect/design professional and the dependent variable is the owners’ perception of the value-added benefit by the architect/design professional. To be more specific, Phase III of this dissertation investigates the identified effect of change on the function of the architect/design professional (determined in Phase II) and the respective impact that change has had on the perception of owners on the value-added benefit of the architect/design professional to properly and successfully perform during the construction phase and contract administration.

For Phase III of this dissertation, the survey research involved a sample of only industry owners and owners’ representatives to participate. The “qualified respondents” were of a target population who are classified as active, experienced owner-participants in the construction phase. The source of the sample was obtained from various organizations, in particular, the American Institute of Architects (AIA), the Associated Owners & Developers (AOD), the Construction Owners Association of America (COAA), and the Construction Users Roundtable (CURT). The survey was disseminated to the executive directors, board of directors, officers, and associate members of the organizations. In addition, the sampling population included the distribution list of the 5th Annual Survey of Owners survey conducted by the FMI Management Consulting and Investment Banking firm in partnership with the Construction Management Association of America (CMAA), which also targeted only owners and owners’ representatives.

3.4.4.2 DATA AND RESULTS

Phase III, the final phase of the three-phase methodology, is thoroughly covered in Chapter 6. Like in Phase II, descriptive statistics was used to describe basic patterns in the data, and summarize the characteristics of the participants and the overall survey results of Phase III. Data was collected and the results reported by descriptive and statistical analysis in Chapter 6.5 and 6.6. Also, the Single-Sample T-test, like in Phase II, was applied in Phase III to statistically check the research hypotheses investigated in the survey questionnaire. Appendix D5 provides the complete output of the descriptive and statistical analysis. Appendix D6 thoroughly details and describes the interpretation of the responses recorded and the statistical analysis.

In addition, another statistical analysis employed to test the research hypotheses is the commonly used method of the Chi-Square test. The Chi-Square test is a non-parametric method, which does not require distributional assumptions about the data and is appropriately used to analyze survey responses when they are

not ordered, but categorical (e.g. when the responses vary from “no effect”, “more responsibility”, or “less responsibility”). The Chi-Square Test is appropriately used to analyze categorical data, such as Questions 9a - 13a of the Phase III survey. The Chi-Square test compares the “expected” and “observed” frequencies of the survey responses. It detects the differences between suggested (“expected”) response frequency distribution and “observed” distribution. For this research, the test framework expected frequencies were favoring neutral answers (e.g., expected values set at 60% (no effect), 5% (more responsibility), and 35% (less responsibility)). If the observed frequency of the neutral answer was found to be significantly lower than expected, then the alternative hypothesis was chosen over the null hypothesis. If the observed frequency of the neutral answer was found to be higher than expected, then the null hypothesis was chosen over the alternative hypothesis.

Chapter 6 details a complete outline on Phase III. It presents the survey instrument used in Phase III (Chapter 6.5.1), reports on the data obtained and recorded (Chapter 6.5.3 and 6.5.4), and provides the results of the three-step statistical analysis of the data recorded for Part III of the survey (Chapter 6.6), which is the core of the investigation of Phase III of this research and the central part of the dissertation research.

3.5 SUMMARY

This chapter is primarily a set of directions for conducting the research for this dissertation, which is an investigation of the changes to key contract provisions in AIA A201 and the impact those incremental changes have had on owners’ perception of the value-added benefit of the architect/design professional during the construction phase and in the administration of the construction contract. This chapter outlines the steps that were undertaken to accomplish the research objectives. The research design associates the methodology of each phase with the research questions, hypotheses, and objectives, accordingly. The appropriate method of study was generated by careful consideration of the research questions and the applicable method by which those questions can be studied. The research design is a combination of methodologies, utilizing desk research and descriptive/survey research.

For example, Phase I’s objective was to identify key provisions of construction contract documents and the respective substantive changes to each provision that may have had an effect on the function of the design professional during the construction phase and contract administration. For the desk research as discussed in Chapter 3.2, archival materials of general conditions of contract and contract documents of AIA A201 (from 1888 to 1997) were gathered from the AIA archival library and the publication department. All of these existing data were sifted through for those provisions that directly influence the function performed by the design professional in construction and contract administration during the construction phase. Then, additional personal input from renowned AIA experts, like Justin Sweet and Bernard Rothchild, and current journal articles were examined for those provisions (from 1951 to 1997) that most affect the function of the architect/design professional’s functions during the construction phase were provided. Subsequently, the desk research continued further by selected provisions (from 1951 to 1997) being subjectively scrutinized, in parallel with the [AIA Cimator](#), to further distinguish those provisions, where change has been significant and has had potential impact on the contractual parties. Chapter 4 details the implementation and results of Phase I of this research study.

Next, Phase II's objective was to examine the effect change has had or not had on the function of the design professional's degree of participation required to properly and successfully perform the design professional's assumed duties and responsibilities during the construction phase and contract administration. The results from achieving the objective of Phase I provided the input material for implementation in Phase II. For example, since this study focus on the AIA A201 from 1951 to 1997, the Shop Drawing provision that indicated the most prominent change was from 1961 to 1997. Therefore, the 1961 provision and the 1997 provision were used in the questionnaire that surveyed the participants' views on categorizing the role (as defined in Chapter 2.10.1 and 2.10.2) and the effect that the change of key provision have had on the function of the architect and/or whether or not the resulting changes have had an effect on the construction phase and contract administration.

Finally, Phase III's objective was to ascertain the impact that changes to the functions performed by the design professional have had or not had on owners' perception of the value-added benefit by the design professional during the construction phase and contract administration. The results from achieving the objective of Phase I and II provided the stimulus material that contributed for the development of the final phase of the three-phase methodology.

Hence, leading to addressing the problem statement presented and manifesting the purpose for this dissertation, as stated in Chapter 1: Change in key provisions in AIA A201 lends itself to an investigation of the effect change has had on the function and value-added benefit by the design professional during the construction phase: is the construction industry developing better contracts and improving contractual relationships (particularly, between the owner and design professional); is the construction industry improving the way business is done in construction practice; or, is the construction industry simply just developing a bigger and more complex monstrosity of documents. There needs to be an understanding of the process used to make changes and the impact of those changes in the general conditions of contracts before one can make effective changes to improve contractual and working relationships during construction. The purpose of this study was to advance the understanding of change in the AIA A201 and the impact change has had on the value-added benefit of the design professional. This research identified the key contract provisions, which influence the function of the design professional performed in contract administration during construction. Subsequently, the effect that change has had on the function performed by the design professional was investigated. Ultimately, the research led to an enhanced knowledge of the owner-perceived value-added benefit by the design professional during the construction phase.

4 PHASE I: IDENTIFICATION OF THE KEY PROVISIONS OF AIA A201 THAT HAVE CHANGED OVER TIME

This chapter gives details on the implementation of Phase I of the three-phase research design for this dissertation. It reports on the results of the desk research and achievement of the first objective of Phase I, concurrently providing material to be used in the implementation of Phase II of the research design.

4.1 INTRODUCTION

The purpose of this dissertation, as discussed in Chapter 1, is **to advance the understanding of change in the AIA A201 and the impact change has had on the value-added benefit of the design professional.** Through the three-phase research design, as outlined in Chapter 3, this research set out to identify the key contract provisions, which influence the function of the design professional performed in contract administration during construction. Then, the effect that change has had on the function performed by the design professional was investigated. Ultimately, the dissertation research led to an enhanced knowledge of the owner's perception of the value-added benefit of the design professional during the construction.

The first phase in this investigation identified that *change* exists in key provisions over time and that change may have influence on the function performed by the architect/design professional during construction and contract administration. Concurrently, the respective substantive changes to each provision that may have had an effect on the function of the design professional were identified and these key provisions were thus studied further in Phase II.

For this dissertation, the survey research, as described above, involved a sample of industry experts to participate, i.e. architects, engineers, general contractors, construction managers, academics, lawyers, and owners. The target population was people who are classified as active, experienced participants in the construction phase, either in the public or private sector. Each person was considered to have a familiarity with the intention and use of the AIA A201 and have different experiences based on their years in the industry, their role in the industry, and the sector the industry they represent.

4.2 QUESTION OF PHASE I

Q1) What key provisions have had substantive changes over time that had an effect on the construction phase and the contract administration?

4.3 HYPOTHESIS OF PHASE I

H1) Change has occurred in key provisions relating to the construction phase and contract administration in the AIA A201 contract document from 1951 to 1997.

4.4 OBJECTIVE OF PHASE I

Obj 1) To identify key provisions of construction contract documents and the respective substantive changes to each provision that may have had an effect on the function of the design professional during the construction phase and contract administration.

4.5 METHODOLOGY OF PHASE I: DESK RESEARCH

The methodology used to gather data to accomplish the objective of the first phase of this dissertation is Desk Research. As discussed in Chapter 3.2.4, desk research is an approach to research that uses as data the personal, subjective accounts of documents, literature, and people's lives and experiences. This phase of research focused upon the extent of *change* in contract provisions over a fairly prolonged period of time (examining the Uniform Contract of 1888 to the 1997 edition of AIA A201, described in Chapter 2.6). The process for Phase I required a judicious examination of a large amount of information, recounting experiences and describing the industry's reactions that may have influence on contract provisions. At the same time, an evaluation of the process of *change* (e.g. revisions from one edition to the next edition) was conducted. The desk research encompassed both the examination and evaluation of contract documents, historical, legal and archival materials, and industry journals for identifying key provisions and the respective substantive changes to each provision that may have had an effect on the function of the design professional during the construction phase and contract administration.

In executing the Desk Research, content analysis was used as a technique for examining patterns, i.e. particularly in this research, patterns of "changes in contract provisions" were examined. In content analysis, a researcher first identifies a body of material to analyze (e.g., books, journal articles, contract documents, etc.) and then creates a system for recording specific aspects of it. The system might include counting how often certain words or themes occur, i.e. as shown in Figure 9. He or she often measures information in the content as numbers and presents it as tables or graphs, as shown in Figure 10. (Neuman 2000, p. 34)

4.6 ANALYSIS OF PHASE I

In executing Phase I of this research, changes to provisions were identified that resonated in common case law, and the customs and practices of the industry. In an effort to study restrictively those cases and practices that have pioneered the changes in the evolution of AIA A201, the desk research was conducted on archival materials, literature, and expert opinions of the AIA 201 contract documents.

The following are samples of the information, materials, and opinions that resonated and led to identify the *shop drawing* contract provision of AIA A201 as a key provision and the respective substantive changes to the provision that may have had an effect on the function of the design professional during the construction phase and contract administration:

Milton F. Lynch states in "An analysis of the new edition of A201" that "although the document disclaims *shop drawings* as contract documents, the added language for the handling of *shop drawings* is clearly motivated by recent structural failures, such as at the Kansas City Hyatt Hotel in 1981. Thus the new language specifies that when professional certification of performance criteria of materials, systems or equipment is required by the contract documents, the architect is entitled to rely upon the accuracy and completeness of the calculations and certifications [e.g.. the *shop drawings*]." (Lynch 1998)

Lynch goes on to state that the pertinence of the A201 in regards to *shop drawings* it that the contract provision continues to use the term "design concept" in defining the duties of the architect in the handling of *shop drawings*. For that matter, the general conditions of the EJCDC do that same. AIA has revised and expanded the

shop drawing obligation, however, to add words such as "limited purpose" of the review. And, more significantly, it adds new language: "Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the contractor..." In review of other industry periodicals, many in the industry believe that the extent to which such precautionary language will be helpful in the event of a similar structural collapse related to faulty *shop drawings* is problematical, particularly as related to injuries to third parties not bound by the contracts between the owner, contractors and design professional, as in the Hyatt case.

Then, the desk research proceeded to the American Institute of Architects Legal Citator, which chronicles all litigation that created an amendment to the AIA family of documents. In précis, the Citator provides the 400-page report of the judgment in the Hyatt Hotel case. And, it was stated that the term "design concept" appears to have no accepted meaning in the law. "Indeed, its meaning appears to be uncertain even to members of the engineering profession. It is a descriptive term which is not only vague, but it seems, purposely so." In that case the judge concluded that the term "design concept" means a review by the design professional to give adequate assurance that the interaction of the members and connections within a building form a safe, stable and strong structure [thus a court interpretation]. (Stein 1999)

"The debate over the merits of design delegation has pitted design professionals against contractors and vice versa. Contractors are concerned that the architect/engineer can shirk responsibility under its agreement with an owner for complete project design...Others speculate that the A/E community is simply looking to limit their duties because of lower fees and to minimize exposure due to insurance cost." ("Design delegation and building performance" 1999) Furthermore, "AGC document specifically includes *shop drawings* in the definition of contract documents. But AIA's document says that they are not part of the contract documents, and that the architect's review of submitted *shop drawings* is limited to checking for conformance with the "design concept." (Lunch 1998)

To further ascertain expert opinions, the researcher conducted a face-to-face interview with Bernard B. Rothchild regarding AIA family of documents and the evolutionary changes of AIA A201. Bernard Rothchild, FAIA, FCSI has been a member of the AIA Documents Committee since 1968. He is Past President of the Atlanta Chapter of AIA, Past AIA Board member, Past Chair of the Practice Commission, Past Chair CSI Documents Committee, and during his tenure with the CSI Documents Committee, he created the CSI Division Format. One of the questions asked was "What areas do you think were the most significant of the changes from 1987 to 1997 editions of A201?" Mr. Rothchild's response was in the areas of *shop drawings*, consequential damages, and mediation. Rothchild proceeded to state that the most significant changes in the modern times to editions of AIA A201 were in the areas of:

- Professional liability
- Warranty obligations
- Field measurements by contractor
- Payment to the contractor when the title is passed to the owner
- Access rights to the site
- Contractor's right to object to replacing architect
- Formatting-gathering dispute resolution provisions under one article.

This interview provided an expert opinion and corroboration for the *shop drawing* contract provision of AIA A201 as a key provision and the respective substantive changes to the provision that may have had an effect on the function of the design professional during the construction phase and contract administration

Also, in conducting the desk research, the *shop drawing* provision was tracked by the simple measurement of change in size of the paragraph (e.g. number of words in the provision). The results are as follows in the matrix of Figure 9 and the plot of Figure 10:

Year	Number of Words	Contract Clause
1888	110	Para. 2d
1911	160	Article 7
1925	131	Article 5
1958	60	Article 5
1967	441	Article 4.13
1976	300	Article 4.12
1997	960	Article 3.12

Figure 9: Word Count (Matrix) – Desk Research

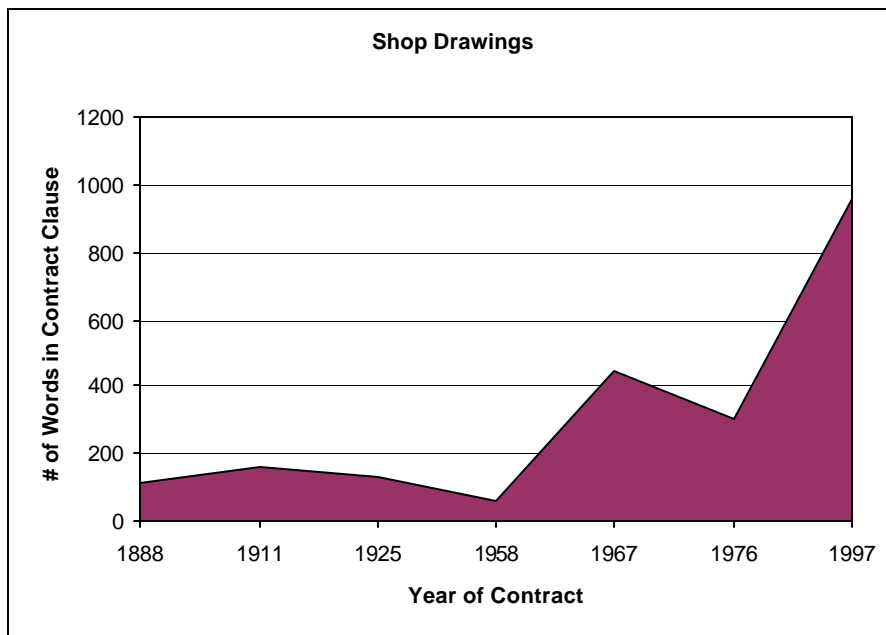


Figure 10: Word Count (Graphics) – Desk Research

Lastly, the AIA general conditions, where change has been significant and has had potential impact on the contractual parties as determined from the desk research above, were examined against the following descriptions, as discussed in Chapter 2.8.2:

- **Introduction of a new provision:** an addition of a new provision to the contract conditions that did not exist in the previous edition.
- **Revision of a provision for substance:** a change of significant nature; an addition or deletion of contract language that goes beyond wordsmith and formatting; one that changes the practice and administration of the provision from the previous edition.

- **Deletion of a provision:** the removal of a provision to the contract conditions that existed in the previous edition.
- **Revision of a provision for clarity:** an addition or deletion of text by wordsmith and/or format in order to explain and improve the understanding of a provision.

Since the focus of this research was on the AIA A201 from 1951 to 1997, the most significant change in the *shop drawing* provision was illustrated by the 1961 and 1997 editions shown below.

1961: "The Contractor shall check and verify all field measurements and shall submit with such promptness as to cause no delay in his own work or in that of any other Contractor, three copies, check and approved by him, of all shop or setting drawings and schedules required for the work of the various trades. The Architect shall check and approve, with reasonable promptness, such schedules and drawings only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. The Contractor shall make any corrections required by the Architect, file with him two corrected copies and furnish such other copies as may be needed. The Architect's approval of such drawings or schedules shall not relieve the Contractor from responsibility for deviations from drawings or specifications, unless he has in writing called the Architect's attention to such deviations at the time of submission, and secured his written approval, nor shall it relieve him from responsibility for errors in *shop drawings* or schedules."

1997: "The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect *Shop Drawings*, Product Data, Sample and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors...By approving and submitting *Shop Drawings*...and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents...

...If professional design services or certification by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy...The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided the Owner and Architect have specified to the contractor all performance and design criteria that such services must satisfy...

The Architect will review and approve or take other appropriate action upon the Contractor's submittals such as *Shop Drawings*, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents... Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents...The Architect's review of the Contractor's submittal shall not relieve the Contractor of the obligations under [other paragraphs]...shall not constitute approval of safety precautions...of construction means, methods, techniques, sequences or procedures...shall not indicate approval of an assembly of which the item is a component."

4.7 RESULTS AND SUMMARY OF PHASE I

From the desk research, such as studying the AIA documents, literature, journals, and other materials written about the AIA A201, the development of a preliminary list of contract provisions that were noteworthy and/or exhibit incremental changes is provided below:

- Changes in the Work
- Role of Architect
- Dispute Resolution
- Ownership of the Documents
- Shop Drawings
- Liens

- Final Payment
- Termination by Owner
- Claims for Extra Cost
- Clean up of site/Hazardous material
- Construction Bonds
- Construction Claims for Damages

Figure 11 provides a framework over time for the substantive changes of some of the noteworthy provisions affecting the construction phase.

As discussed in Chapter 1, the purpose of this dissertation study was to advance the understanding of change in the AIA A201 and the impact change has had on the value-added benefit of the design professional. Therefore, after further investigation and discussions with industry participants and AIA A201 experts for their accounts and experiences, in the final analysis, certain provisions were discarded from further investigation. Thus, Phase I of the research identified the key contract provisions, which demonstrated significant change and influence on the function of the architect/design professional performed in contract administration during construction. The completion of Phase I resulted in the list of seven (7) key provisions shown below, which was later used for the input for the survey questionnaire of Phase II of the three-phase methodology:

- **Role of the Architect**

1951: "The Architect shall have general supervision and direction of the work. He is the agent of the Owner only to the extent provided in the Contract Documents and when in special instances, he is authorized by the Owner so to act, and in such instances he shall, upon request, show the Contractor written authority...As the Architect is...the interpreter of the conditions of the Contract and the judge of its performance, he shall side neither with the Owner nor with the Contractor, but shall use his powers under the contract to enforce its faithful performance by both."

1997: "The Architect, as a representative of the Owner, will visit the site at intervals appropriate to the stage of the Contractor's operations (1) to become generally familiar with and to keep the Owner informed about the progress and quality of the portion of the Work completed, (2) to endeavor to guard the Owner against defects and deficiencies in the Work, and (3) to determine in general if the Work is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will neither have control over or charge of, nor be responsible for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work..."

- **Dispute Resolution**

1951: "The Architect shall, within a reasonable time, make decisions on all claims of the Owner or Contractor and all other matters relating to the execution and progress of the work or the interpretation of the Contract Documents. The Architect's decision, in matters relating to artistic effect, shall be final, if within the terms of the Contract Documents. Except as above or as otherwise expressly provided in the Contract Documents, all the Architect's decisions are subject to arbitration."

1997: "The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness...Interpretations and decision of the Architect will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and initial decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions so rendered in good faith...Any

Claim arising out of or related to the Contract, ... shall...be subject to mediation as a condition precedent to arbitration or the institution of legal or equitable proceedings by either party. The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be in accordance with the Construction Industry Mediation Rules of the American Arbitration Association currently in effect."

- **Ownership of Documents**

1951: "All Drawings, Specifications and copies thereof furnished by the Architect are his property. They are not to be used on other work and, with the exception of the signed Contract set, are to be returned to him on request, at the completion of the work. All models are the property of the Owner."

1997: "The Drawings, Specifications and other documents, including those in electronic form, prepared by the Architect and the Architect's consultants are Instruments of Service through which the Work to be executed by the Contractor is described...The Drawings, Specifications and other documents prepared by the Architect and the Architect's consultants, and copies thereof furnished to the Contractor, are for use solely with respect to this Project. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or material or equipment supplier on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants."

- **Final Payment**

1966: "Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when he finds the Work acceptable under the Contract Documents and the Contract fully performed, he will promptly issue a final Certificate for Payment stating that to the best of his knowledge, information and belief, and on the basis of his observations and inspections, the Work has been completed in accordance with the terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor, and noted in said final Certificate, is due and payable."

1997: "Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when he finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of his knowledge, information and belief, and on the basis of his on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Subparagraph...as precedent to the Contractor's being entitled to final payment have been fulfilled. "

- **Claims for Extra Cost**

1951: "If the Contractor claims that any instructions by drawings or otherwise involve extra cost under this contract, he shall give the Architect written notice thereof within a reasonable time after the receipt of such instructions, and in any event before proceeding to execute the work, ...and the procedure shall then be as provided for changes in the work. No such claim shall be valid unless so made..."

The Architect shall, within a reasonable time, make decisions on all claims of the Owner or Contractor and on all matters relating to the execution and progress of the work or the interpretation of the Contract Documents."

1997: "Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Claims must be initiated by written notice to the Architect and the other party..."

If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the Architect on the basis of reasonable expenditures and savings of those performing the Work attributable to the change,

including, in case of an increase in the Contract Sum, a reasonable allowance for overhead and profit..

Pending final determination of the total cost...amounts not in dispute for such changes in the Work shall be included in Applications for Payment accompanied by a Change Order indicating the parties' agreement with part or all of such costs. For any portion of such cost that remains in dispute, the Architect will make an interim determination for purposes of monthly certification..."

- **Shop Drawings**

1961: "The Contractor shall check and verify all field measurements and shall submit with such promptness as to cause no delay in his own work or in that of any other Contractor, three copies, check and approved by him, of all shop or setting drawings and schedules required for the work of the various trades. The Architect shall check and approve, with reasonable promptness, such schedules and drawings only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. The Contractor shall make any corrections required by the Architect, file with him two corrected copies and furnish such other copies as may be needed. The Architect's approval of such drawings or schedules shall not relieve the Contractor from responsibility for deviations from drawings or specifications, unless he has in writing called the Architect's attention to such deviations at the time of submission, and secured his written approval, nor shall it relieve him from responsibility for errors in shop drawings or schedules."

1997: "The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Sample and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors...By approving and submitting Shop Drawings...and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents..."

...If professional design services or certification by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy...The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided the Owner and Architect have specified to the contractor all performance and design criteria that such services must satisfy...

The Architect will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents... Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents...The Architect's review of the Contractor's submittal shall not relieve the Contractor of the obligations under [other paragraphs]...shall not constitute approval of safety precautions...of construction means, methods, techniques, sequences or procedures...shall not indicate approval of an assembly of which the item is a component."

- **Changes in the Work**

1951: "The Owner, without invalidating the Contract, may order extra work or make changes by altering, adding to or deducting from the work, the Contract Sum being adjusted accordingly...In giving instructions, the Architect shall have authority to make minor changes in the work, not involving extra cost, and not inconsistent with the purposes of the building, but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order from the Owner signed or countersigned by the Architect, or a written

order from the Architect stating that the Owner has authorized the extra work or charge, and no claim for an addition to the Contract Sum shall be valid unless so ordered.

The value of any such extra work or change shall be determined...the Contractor, provided he received an order as above, shall proceed with the work...he shall keep and present in such form as the Architect may direct, a correct account of the cost, together with vouchers. In any case, the Architect shall certify to the amount, including reasonable allowance for overhead and profit, due to the Contractor. Pending final determination of value, payments on account of changes shall be made on the Architect's certificate."

1997: "Change in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work... A Change Order shall be based upon agreement among the Owner, Contractor and Architect; A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect, stating their agreement upon all of the following: 1. Change in Work, 2. The amount of the adjustment, if any, in the Contract Sum; and 3. The extent of the adjustment, if any, in the Contract Time.

A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both...A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order...Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time. A Construction Change Directive signed by the Contractor indicated the agreement of the Contractor therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the Architect on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, a reasonable allowance for overhead and profit...

Pending final determination of the total cost of a Construction Change Directive to the Owner, amounts not in dispute for such changes in the Work shall be included in Applications for Payment...For any portion of such cost that remains in dispute, the Architect will make an interim determination for purposes of monthly certification for payment for those costs.

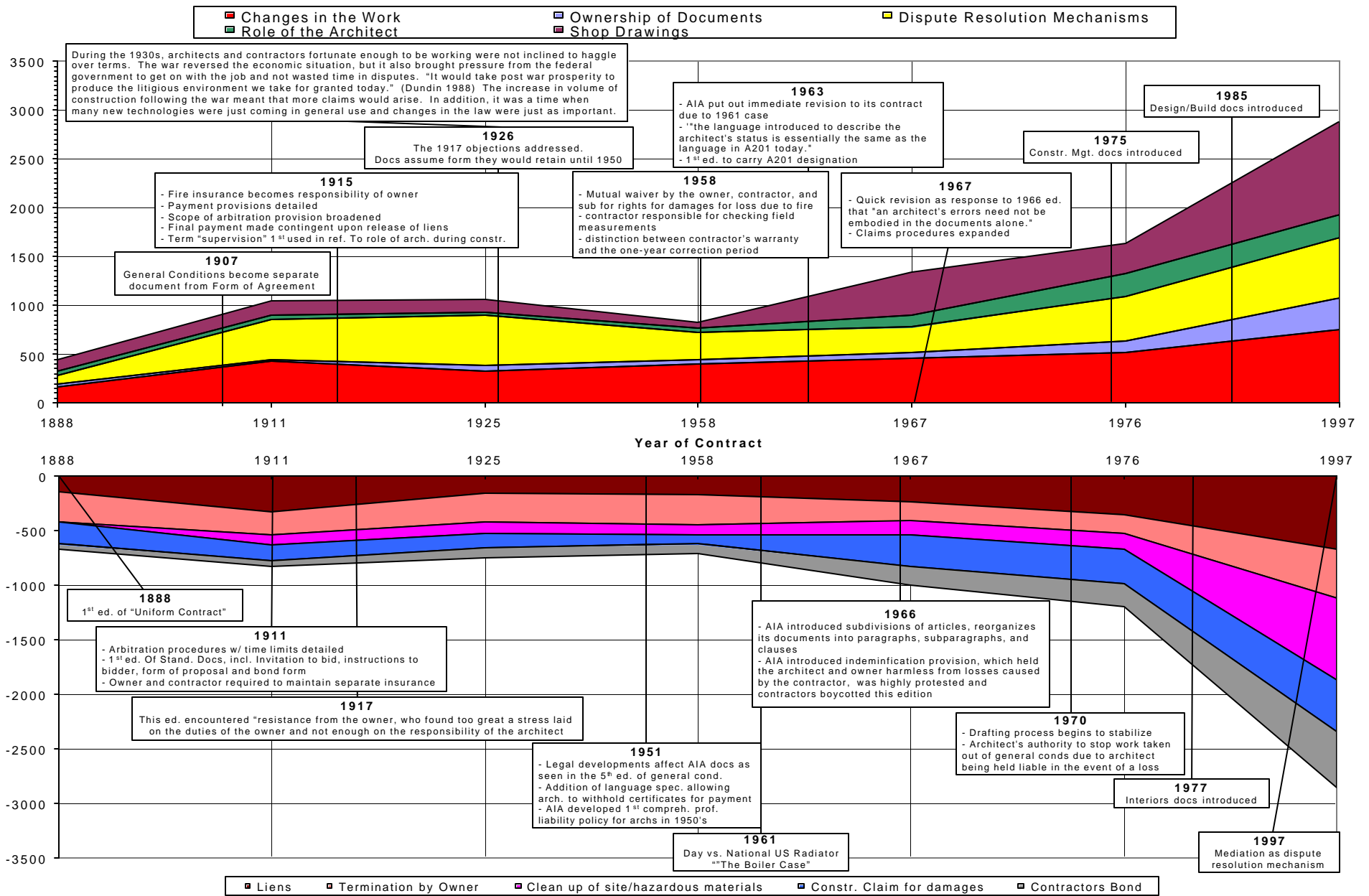


Figure 11: A Framework over Time for the Substantive Changes of Some of the Noteworthy Provisions.

5 PHASE II: AN EXAMINATION OF CHANGES IN THE FUNCTION OF THE ARCHITECT/DESIGN PROFESSIONAL AS A RESULT OF CHANGES IN THE AIA A201

This chapter reports on the implementation of Phase II of the research methodology. It presents the survey instrument used in Phase II, reports on the data obtained, and provides an analysis and interpretation of the results.

5.1 INTRODUCTION

Construction industry players, rules, customs, and practices have evolved over time in response to changes in the construction industry. The process of making incremental changes to The American Institute of Architects (AIA) Document A201, General Conditions of the Contract for Construction (AIA A201), as evident by the various editions, has occurred due, in part, to these changing rules, customs, and practices. The research question addressed in Phase II of the three-phase investigation for this dissertation is have changes in the key provisions of general conditions affected the function of the design professional during the construction phase and contract administration.

A survey questionnaire was used to identify key provisions of AIA A201 and the respective substantive changes to each provision that may have had an effect on the function of the design professional during the construction phase and contract administration and to examine the effect change has had or not had on the function of the design professional to properly and successfully perform during the construction phase and contract administration. As discussed in Chapter 3.3.4, the survey instrument was a self-administered survey distributed by mail.

The source of the sample population was a collective list of colleagues of the architect/engineering/construction industry, departmental advisory boards, and organization affiliations. The sampling frame was categorized into three (3) groups: architects/engineers, general contractors/construction managers, and legal professionals. Given the quantity of contacts provided by the committee in congruence with the three categories, the actual sample ended up with seventy-five (75) individuals, where there were twenty-five (25) in each of the groups. The researcher concluded to use for the research convenient sample of the entire small homogeneous population of 75 industry professionals.

The primary hypothesis tested in Phase II is whether or not changes made to key provisions of AIA A201 have had a material effect on the function performed by the architect/design professional during the construction phase and contract administration. Secondly, the hypothesis and results of Phase I (Change has occurred in key provisions relating to the construction phase and contract administration in the AIA A201 contract document from 1951 to 1997) are also reinforced or discharged. This chapter presents Phase II in total: question, hypothesis, objective, methodology - survey instrument, analysis of data, and interpretation of the results.

5.2 QUESTION OF PHASE II

Q2) Have changes in the key provisions of general conditions affected the function of the design professional during the construction phase and the contract administration?

5.3 HYPOTHESES OF PHASE II

H1) Change has occurred in key provisions relating to the construction phase and contract administration in the AIA A201 contract document from 1951 to 1997; and

H2) Changes made to key provisions of AIA A201 have had a material effect on the function performed by the architect/design professional during the construction phase and contract administration.

5.4 OBJECTIVE OF PHASE II

Obj 2) To examine the effect change has had or not had on the function of the design professional's degree of participation required to properly and successfully perform the design professional's assumed duties and responsibilities during the construction phase and contract administration.

5.5 METHODOLOGY OF PHASE II: SURVEY QUESTIONNAIRE

5.5.1 INSTRUMENT

The methodology of Phase II sets out to support the hypothesis (“Changes made to key provisions of AIA A201 have had a material effect on the function performed by the architect/design professional during the construction phase and contract administration”), where the independent variable is change in key provisions and the dependent variable is the function of architect/design professional. To be more specific, the objective of Phase II of this dissertation is to examine the effect change has had or not had on the function of the design professional's degree of participation required to properly and successfully perform the design professional's assumed duties and responsibilities during the construction phase and contract administration.

To meet the objectives, there are a combined total of thirty-four (34) closed-ended and multiple-choice questions, which were used to ascertain information and insights from the knowledgeable and experienced respondents. The complete original questionnaire is shown in Appendix C2.

The questionnaire is divided into three (3) parts:

1. **Part I: Your Background** – designed to gauge professional characteristics, industry representation, and years of industry experience (Questions 1-4 are shown below and descriptive results are presented in Chapter 5.5.4).

PART I: YOUR BACKGROUND

- 1) Which of the following professional categories best describes your primary role in the construction industry?
(Check only one box)
- | | | | |
|---|---|-----------------------------------|--------------------------------|
| <input type="checkbox"/> Architect | <input type="checkbox"/> Engineer | <input type="checkbox"/> Academic | <input type="checkbox"/> Owner |
| <input type="checkbox"/> General Contractor | <input type="checkbox"/> Construction Manager | <input type="checkbox"/> Lawyer | <input type="checkbox"/> Other |
- 2) Which sector of the construction industry do you primarily represent or provide services to?
(Check only one box)
- | | |
|---|--|
| <input type="checkbox"/> Private sector | <input type="checkbox"/> Public sector |
|---|--|
- 3) Of the following identified areas of the industry, which one best identifies the type of work you are primarily engaged in? (Check only one box)
- | | | |
|---|--|--|
| <input type="checkbox"/> Commercial | <input type="checkbox"/> Transportation/Infrastructure | <input type="checkbox"/> Institutional |
| <input type="checkbox"/> Residential | <input type="checkbox"/> Governmental | <input type="checkbox"/> Legal |
| <input type="checkbox"/> Claims Analysis/Expert Witness | | <input type="checkbox"/> Other / Combination |
- 4) How many years have you worked in the construction industry? (Check only one box)
- | | | |
|---|--|--|
| <input type="checkbox"/> Less than 10 years | <input type="checkbox"/> 11 – 15 years | <input type="checkbox"/> 16 – 20 years |
| <input type="checkbox"/> 21 – 25 years | <input type="checkbox"/> 26 – 30 years | <input type="checkbox"/> 31 – 35 years |
| <input type="checkbox"/> 36 years or more | | |

2. **Part II: Use of AIA A201** – designed to gauge the respondents' familiarity and use of the AIA A201 family of contract documents (Questions 5 & 6 are shown below and descriptive results are presented in Chapter 5.5.4).

PART II: USE OF AIA A201

- 5) Are you currently using, have you previously used, or are you otherwise familiar with documents from the AIA A201 "family" of contract documents?
- | | |
|---|--|
| <input type="checkbox"/> Yes (Go to Question 6) | <input type="checkbox"/> No (Go to Question 7) |
|---|--|
- 6) Considering your use of or familiarity with AIA contract documents, are you using or have you used these documents "as printed," or are you making or have you made modifications to these documents?
(Check the boxes that apply)
- | |
|--|
| <input type="checkbox"/> Using or used as printed |
| <input type="checkbox"/> Using or used with minor modifications |
| <input type="checkbox"/> Using or used with major modifications |
| <input type="checkbox"/> Using or used as a "model" for my own and/or the owner |
| <input type="checkbox"/> Using or used in combination with my own documents and/or my client's documents |

3. **Part III: Key AIA A201 Provisions** – designed to gauge knowledge and opinion regarding the effect that the change of key provisions in AIA A201 from 1951 to 1997 have had on the function of the architect and/or whether the resulting changes have improved or hindered the construction phase and contract administration (An illustration of Questions 7a - 7g is presented below and the results of the statistical analyses are presented in Chapter 5.6).

Part III begins the inquiry at Question 7. Part III of the survey is the core of the investigation of Phase II of this research. Part III is the central part of the questionnaire. There are seven (7) areas of inquiry with corresponding four (4) questions. Each inquiry of Part III consists of four questions regarding the seven key provisions determined directly from the results of Phase I of this dissertation, reported in Chapter 4.7. The seven areas of inquiry are the contract provisions:

- a. Role of the Architect (Question 7a)
- b. Dispute Resolution (Question 7b)
- c. Ownership of Documents (Question 7c)
- d. Final Payment (Question 7d)
- e. Claims for Extra Cost (Question 7e)
- f. Shop Drawings (Question 7f)
- g. Changes in the Work (Question 7g)

For an example of Part III Questions 7, Question 7b (Dispute Resolution) begins by providing two (2) paragraphs of contract provision on 'Dispute Resolution' from AIA A201, one (1) for the year of 1951 and one (1) for the year of 1997. Question 7b aims to address the role of the architect in the Dispute Resolution contract provision in 1951 (first question) and in 1997 (second question). As demonstrated in the below illustration, the respondents are asked to "mark one (X) in the appropriate column, which of the following statements most accurately reflects the role played by the architect in the Dispute Resolution provision for each specified years."

b. DISPUTE RESOLUTION

Study the following contract language concerning **DISPUTE RESOLUTION** from AIA 201 for the years indicated:

1951: "The Architect shall, within a reasonable time, make decisions on all claims of the Owner or Contractor and all other matters relating to the execution and progress of the work or the interpretation of the Contract Documents. The Architect's decision, in matters relating to artistic effect, shall be final, if within the terms of the Contract Documents. Except as above or as otherwise expressly provided in the Contract Documents, all the Architect's decisions are subject to arbitration."

1997: "The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness...Interpretations and decision of the Architect will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and initial decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions so rendered in good faith...Any Claim arising out of or related to the Contract, ... shall...be subject to mediation as a condition precedent to arbitration or the institution of legal or equitable proceedings by either party. The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be in accordance with the Construction Industry Mediation Rules of the American Arbitration Association currently in effect."

- (1) Based on the language above, indicate by marking one (X) in the appropriate column, which of the following statements most accurately reflects the role played by the Architect in the **DISPUTE RESOLUTION** for each of the specified years (*for example, if based on the comparative language above you conclude that under the 1951 provision the Architect "plays a primary lead role during the construction phase", place an "X" on line 1 in the 1951 column; and, if you conclude that under the 1997 provision the Architect "plays an advisory role during the construction phase", place an "X" on line 5 in the 1997 column*):

THE ROLE OF THE ARCHITECT [IN THE DISPUTE RESOLUTION PROVISION]	IN THE YEAR OF:	
	1951	1997
1. The Architect plays a primary lead role during the construction phase		
2. The Architect plays a secondary support role during the construction phase	X	
3. The Architect plays a supervisory role during the construction phase		
4. The Architect serves as a reviewer during the construction phase		X
5. The Architect plays an advisory role during the construction phase		
6. The Architect plays a quasi-judicial role during the construction phase		

This above matrix seeks to gauge the respondents' opinion on what function (as defined in Chapter 2.10), as dictated by the Dispute Resolution contract provision, the architect played in 1951 and in 1997; thus, leading to identifying whether or not there has been an essential change in the function of the architect's role during construction and contract administration from 1951 to 1997 (within the context of the Dispute Resolution contract provision).

Next, the third question of Question 7b (e.g. 2i) is a closed-ended question with ordered choices. Closed-ended questions with ordered answer choices tend to be quite specific. Another distinguishing feature of this kind of question is that each choice represents a gradation of a single concept. A range of possible answers is provided. The respondent's job is to find the most appropriate place on the continuum for an answer. In this survey, an example of a third question asks respondents to compare "the contract language from 1951 and 1997." The question, as illustrated below, is designed to ascertain to what level does the respondent "agree or disagree" that "The evolution of the AIA A201 Dispute Resolution contract provision from 1951 and 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities."

(2) Identify to what extent you agree or disagree with the following statements regarding comparing the contract language from 1951 and 1997. *(Check only one box)*

- i. The evolution of the AIA A201 **DISPUTE RESOLUTION** provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.
- Strongly Agree
 - Somewhat Agree
 - Neither Agree nor Disagree
 - Somewhat Disagree
 - Strongly Disagree
 - No Opinion

Lastly, the fourth question of Question 7b (e.g. 2ii), as illustrated below, aims to determine to what level the industry experts agree or disagree that the comparison from 1951 to 1997 in the contract provision denotes a change that "has directly affected the function of the architect."

- ii. The evolution of the AIA A201 **DISPUTE RESOLUTION** provision from 1951 to 1997 has directly affected the function of the Architect during the construction process.
- Strongly Agree
 - Somewhat Agree
 - Neither Agree nor Disagree
 - Somewhat Disagree
 - Strongly Disagree
 - No Opinion

5.5.2 IMPLEMENTATION

“A successful survey produces sound data that can be translated into valuable information.” (Dillman and Salant 1994, p. 11) Therefore, this dissertation implemented the detailed procedures, known as “The Tailored Design Method,” to contact and engage the survey research participants. Elements of the Tailored Design Method are as follows:

Pre-notice letter (See Appendix C1)

- Sent to the respondent a few days to a week prior to the actual questionnaire
- Notes that a questionnaire for an important survey will arrive in a few days, sponsorship, and that the person’s response would be greatly appreciated
- Salience of the questionnaire about current behaviors or interests
- Asks for no immediate response
- It is a request to help with an important study or survey with support/sponsorship by the Ph. D. committee
- Should be brief, personalized, positively worded, and aimed at building anticipation rather than providing the details or conditions for participation in the survey
- If a small token of appreciation is to be provided with the questionnaire, it should be mentioned here without going into details

Questionnaire package

- A detailed cover letter explaining why a response is important, the object of the study and definition of incremental change (See Appendix C1)
- The questionnaire (See Appendix C2)
- Any token of appreciation
- A return envelope

Thank you postcard

- Sent a few days to a week after the questionnaire to all respondents
- Express appreciation for responding
- Indicates that if the completed questionnaire has not yet been mailed, it is hoped that it will be returned soon
- It serves both as a thank you for those who have responded and as a friendly and courteous reminder for those who have not
- Replacement questionnaire (if necessary)
- Sent to non-respondents after the previous mailing deadline
- Indicates that the person’s completed questionnaire has not yet been received and urges the recipient to respond
- “We’ve not yet heard from you....”

Final contact (if necessary)

- Made by telephone after replacement questionnaire
- Expresses the importance of response to the sponsor by showing the expenditure of considerably more effort and resources, as reflected by the cost of delivery (Dillman 2000, p. 149-193)

The Tailored Design Method utilizes a general method of implementation that has proven to achieve good results for most surveys.

5.5.3 TALLY OF RESPONSES

Seventy-five (75) surveys were mailed to a combination of twenty-five (25) contractor/construction manager professionals, twenty-five (25) legal professionals, and twenty-five (25) design professionals of architects and engineers.

Location rate = 95%: Four (4) were delivered to wrong addresses, leaving seventy-one (71) potential respondents.

Return rate = 49%: Thirty-five (35) surveys were returned.

Completion rate = 91%: Three (3) were non-responsive, leaving a total of thirty-two (32) returned completed surveys.

Total response rate = 43%: "Response rates are a major concern for mail questionnaires. A response rate of 10 to 50 percent is common for a mail survey." (Neuman 2000, p. 268)

Appendix C2 provides the original survey questionnaire with the score of the responses in parentheses. Appendix C3 provides the survey questions with their corresponding scale of responses applied for analysis. Note, the questions are identified in numerical order to make for thirty-four (34) sequential questions; and, Appendix C4 provides the tally of the 34 responses by the 32 participants.

5.5.4 DESCRIPTION OF THE RESPONDENTS

To reiterate, the objective of Phase II is to examine the identified key provisions (provided from Phase I reported in Chapter 4) and the respective effect change has had or not had on the function of the design professional's degree of participation required to properly and successfully perform the design professional's assumed duties and responsibilities during the construction phase and contract administration. To meet the objectives, there are a combined total of closed-ended and multiple-choice questions, which were used to ascertain information and insights from the knowledgeable and experienced respondents.

"Part I: Your Background" (consisting of Question 1 to Question 4) was designed to gauge professional characteristics, industry representation, and years of industry experience. The results are as follows:

Question 1: The professional category that best describes the respondents' (32 returned completed questionnaires) primary role in the construction industry is shown below in Figure 12. Despite the surveys being mailed to twenty-five contractor/construction manager professionals, twenty-five legal professionals, and twenty-five design professionals of architects and engineers, the primary occupations are in the areas of general contractors, construction managers, and lawyers.

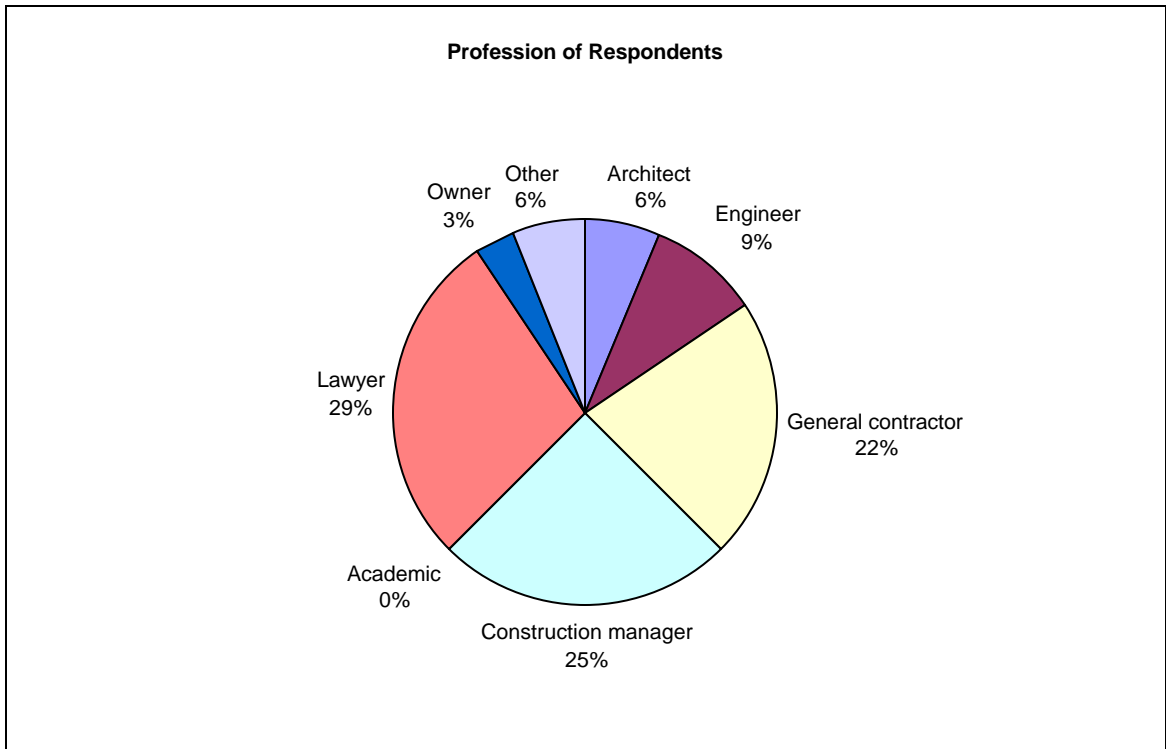


Figure 12: Categories of the Primary Role of the Respondents in the Construction Industry

Question 2: The majority of the respondents primarily represents or provides services to the private sector of the construction industry, as shown below in Figure 13.

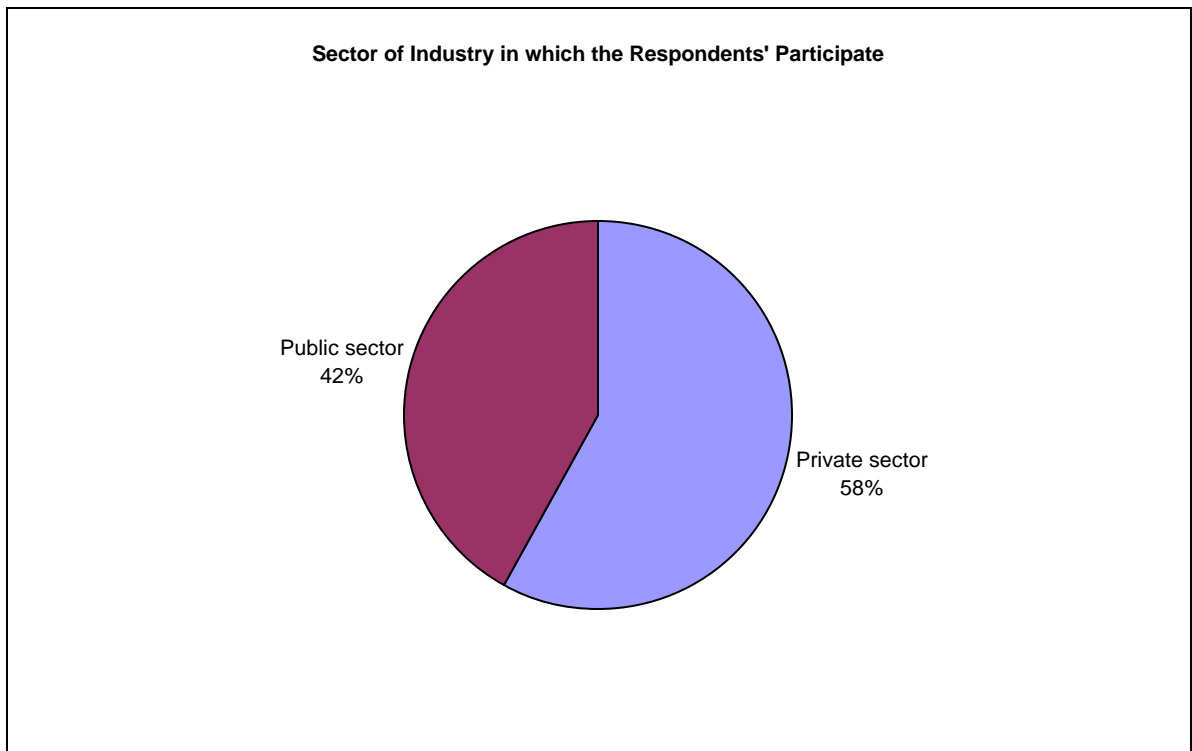


Figure 13: Sector in the Construction Industry that the Respondents Participate

Question 3: The areas of industry that best describes the respondents' primary type of work engaged in the construction industry are shown below in Figure 14. Of the 32 respondents, 7 respondents (22%) work in the commercial area of the industry and 8 respondents (26%) represent the legal area of the industry. The other half of the respondents represents the transportation, government, institutional, and claims/expert witness areas of the industry.

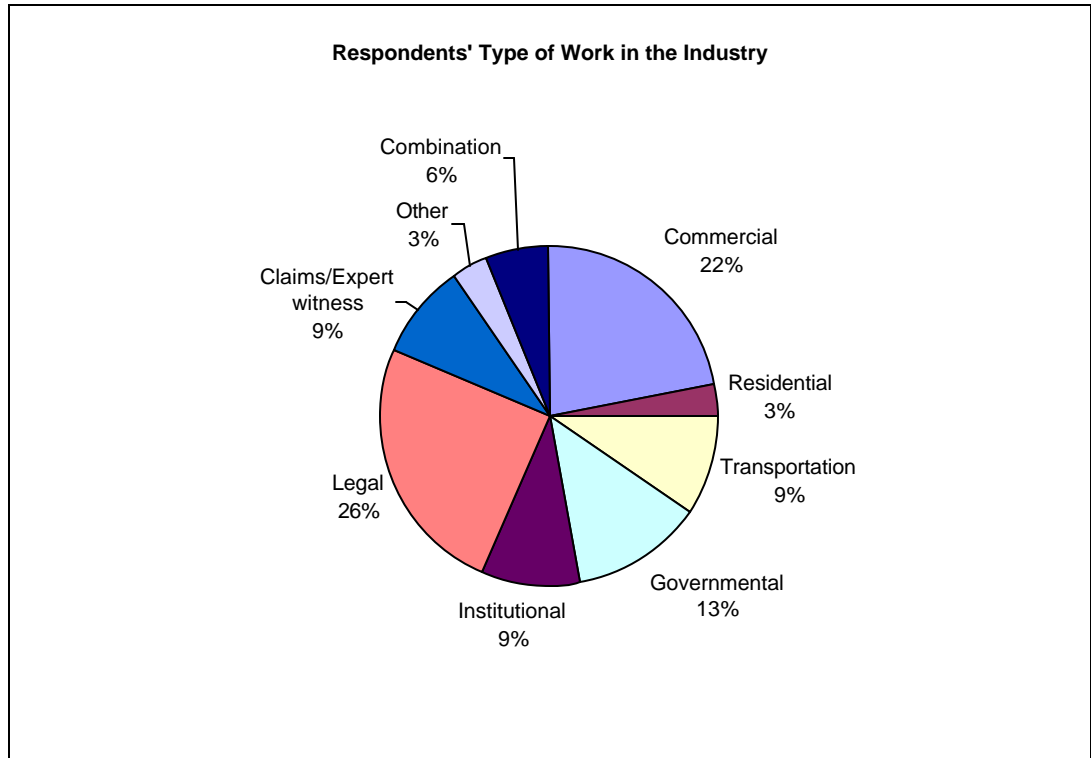


Figure 14: Primary Type of Work that the Respondents Participate in the Construction industry

Question 4: All of the respondents have more than 10 years of experience working in the construction industry. 27 of the 32 respondents have over 20 years of experience. 18 of the respondents have over 30 years of experience and 11 have over 36 years of experience. Below, Figure 15 exhibits a depiction of the survey results of the years of experience of the respondents in the construction industry.

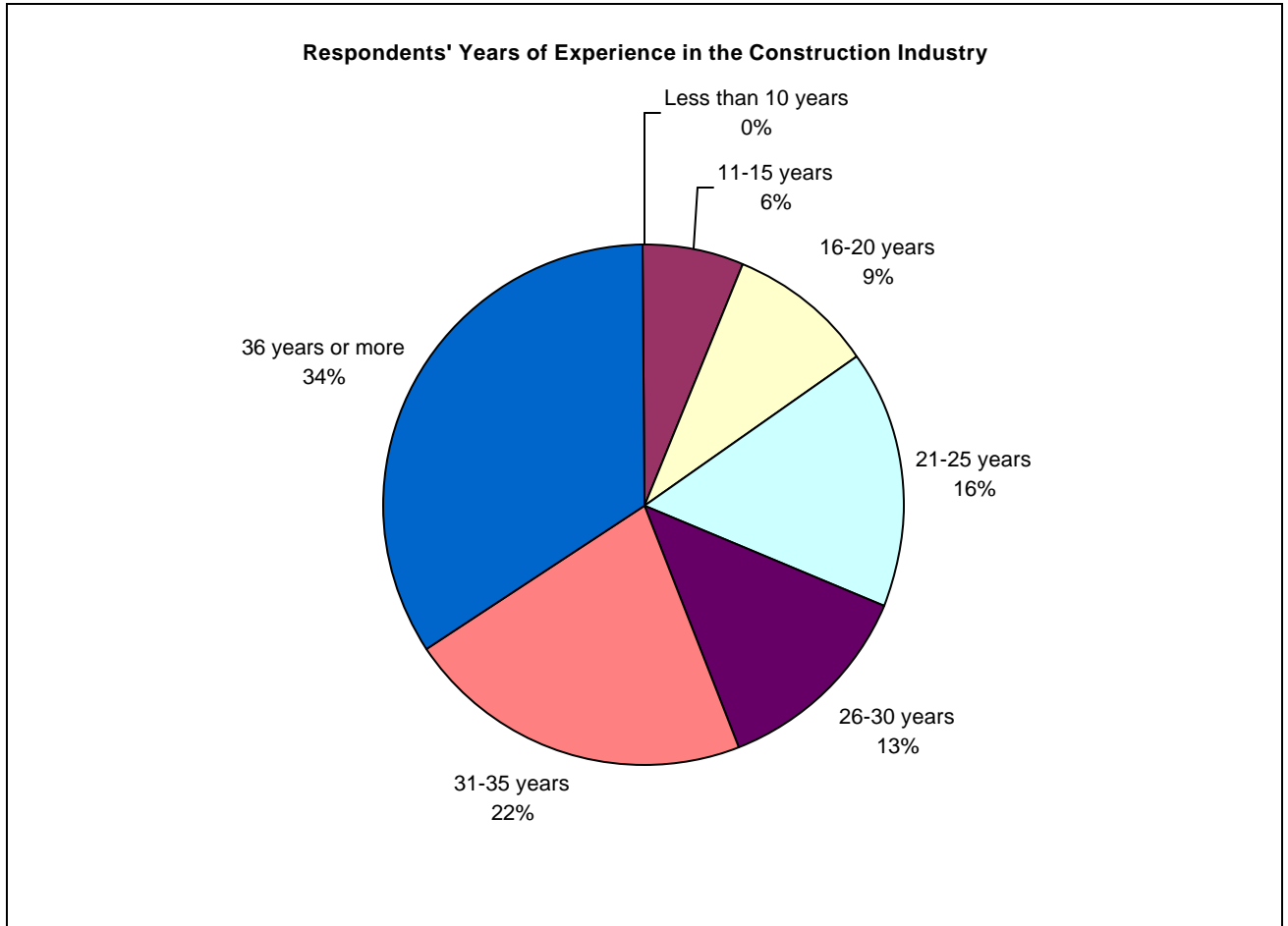


Figure 15: Years of Experience of the Respondents in the Construction Industry

“Part II: Use of AIA 201” (consisting of Question 5 and Question 6) was designed to gauge the respondents’ familiarity and use of the AIA A201 family of contract documents. The results are as follows:

Question 5: Below, Figure 16 presents the survey results of the number of respondents who have some familiarity with the AIA family of documents. 27 of the 32 respondents (84%) are currently using, have previously used, or are otherwise familiar with family of documents from the AIA contracting system.

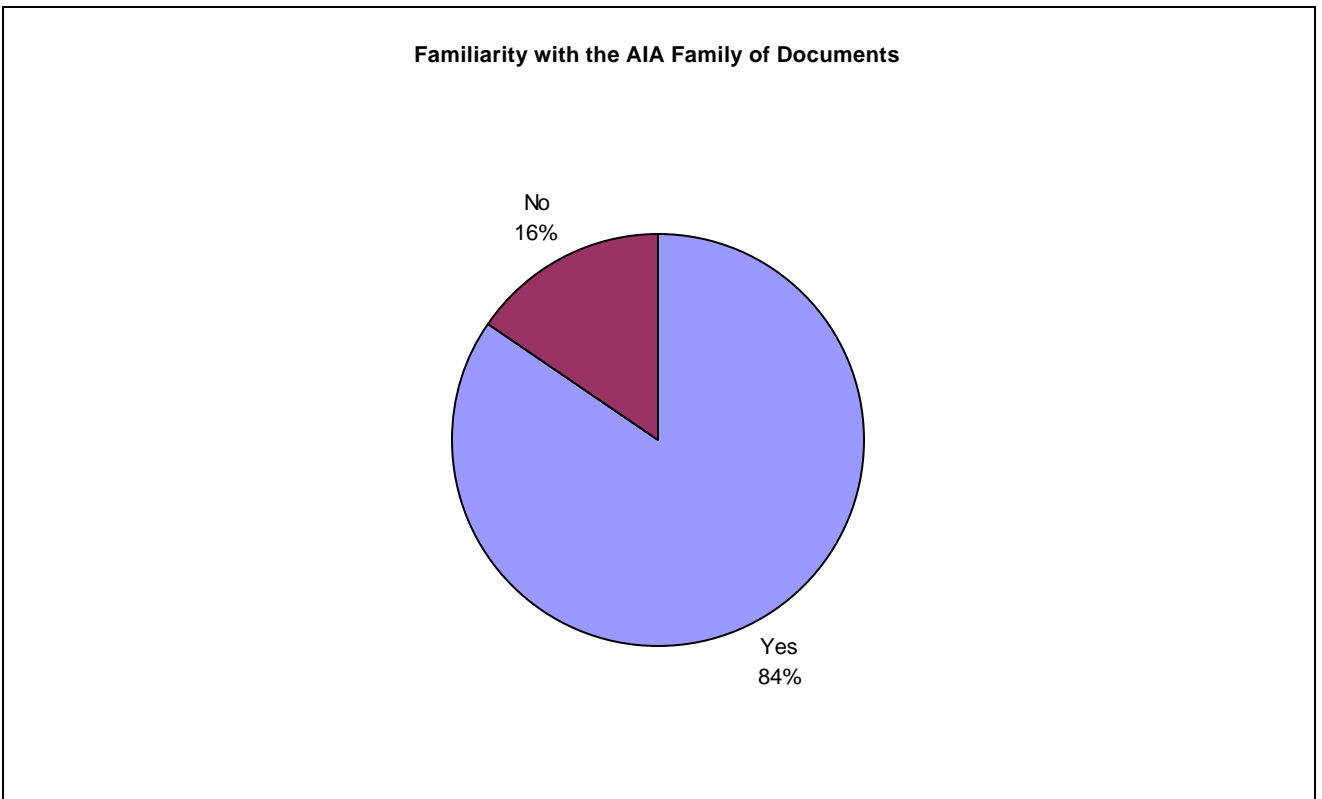


Figure 16: Percentage of Respondents familiar with the AIA Family of Documents

A majority of the respondents are familiar with AIA and all respondents’ answers were usable in the investigation. A participant’s continuation in the survey (Part III of the questionnaire) does not specifically require participants to have knowledge of or use of the framework of the AIA family of documents, but simply asks the participants to compare stand-alone contract provisions. The respondents’ opinion regarding the effect that the evolution of key provisions in AIA A201 have had on the function of the Architect and/or whether the resulting changes have improved or hindered the construction phase does not rely on their familiarity or use of the AIA family of contracts, but their perception from reading a “before” provision at one time period (typically, 1951) to an “after” provision at another time (typically, 1997).

Question 6: Of those who responded “yes” in the Question 5 above, Figure 17 shown below presents their use of or familiarity with AIA contract documents, and uses with the documents “as printed” and/or use with modified versions of the documents.

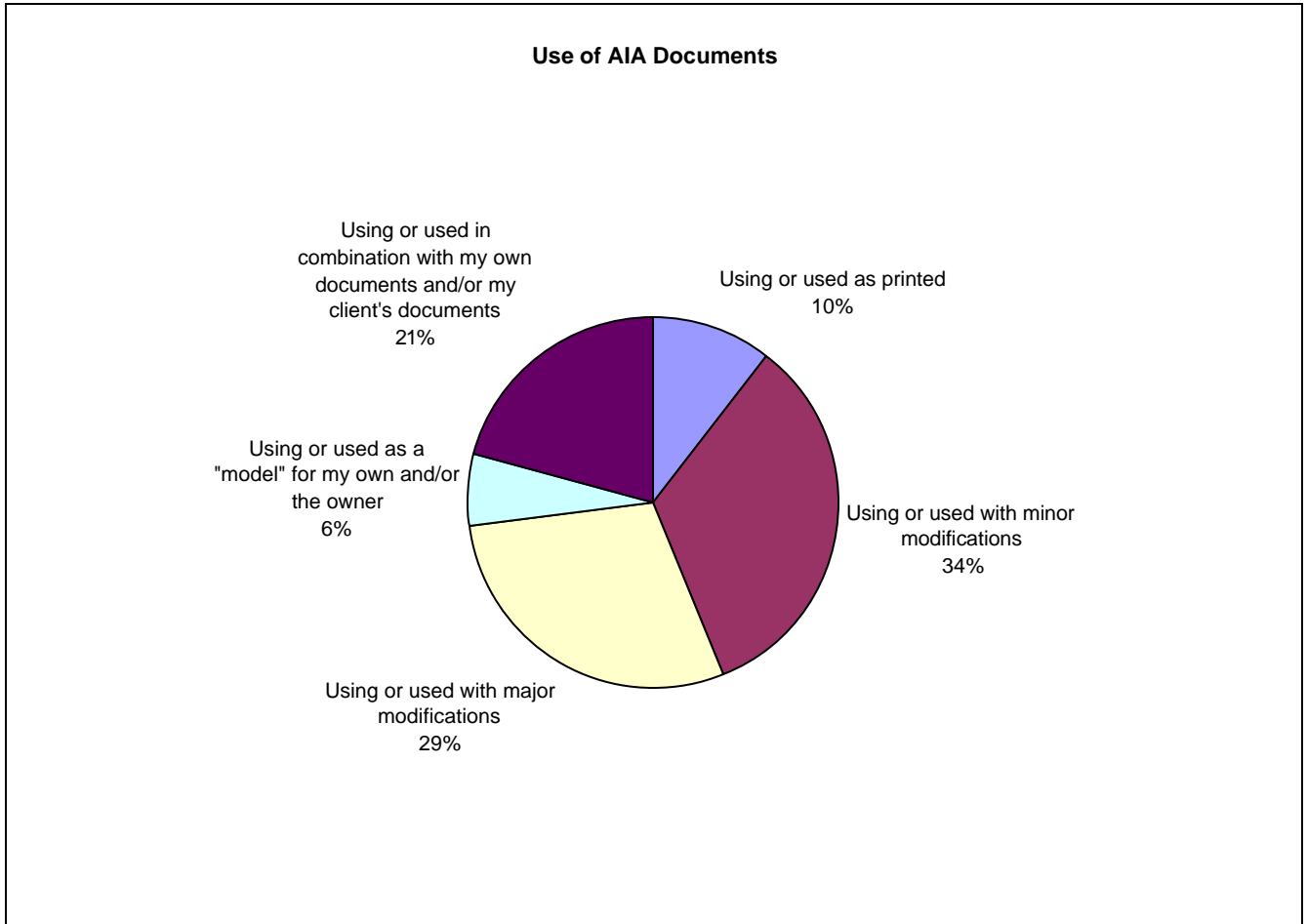


Figure 17: Percentage of Respondents use of the AIA Family of Documents

5.6 ANALYSIS OF PHASE II

As declared in Chapter 5.5.1 concerning **Part III: Key AIA A201 Provisions** of the survey (Questions 7a to Question 7g) is the core of the investigation of Phase II. Part III of the survey was designed to gauge the respondents' opinion regarding the effect that the change of key provisions in AIA A201 from 1951 to 1997 have had on the function of the architect and/or whether the resulting changes have improved or hindered the construction phase and contract administration. The self-administered survey of Phase II consisted of a line of questioning within the following seven (7) contract provisions, which were ascertained from the implementation of Phase I, as reported in Chapter 4:

1. Question 7a: Role of the Architect (renumbered Q7 – Q10)
2. Question 7b: Dispute Resolution (renumbered Q11 – Q14)
3. Question 7c: Ownership of Documents (renumbered Q15 – Q18)
4. Question 7d: Final Payment (renumbered Q19 – Q22)
5. Question 7e: Claims for Extra Cost (renumbered Q23 – Q26)
6. Question 7f: Shop Drawings (renumbered Q27 – Q30)
7. Question 7g: Changes in the Work (renumbered Q31 – Q34)

The analysis of Part III was a three-step process in which each of the seven (7) contract provisions were examined, as described in Chapter 3.3.4.2. The aforementioned three-step process was as follows:

Step 1 – Preliminary Analysis: the survey responses of Part III were tallied, tabulated, and reviewed for establishing preliminary findings.

Step 2 – Statistical Analysis: from the preliminary findings established from Step 1, hypotheses were defined and the respective statistical tests were conducted to confirm or deny the preliminary findings.

Step 3 – Findings: from the results of the statistical analysis conducted in Step 2, the resulting final findings are summarized.

5.6.1 STEP 1 - PRELIMINARY ANALYSIS OF PART III OF PHASE II

The Preliminary Analysis of Part III consisted of the tallying, tabulating, and reviewing of the survey responses for the subsequent preliminary findings. Part III of the survey was designed to gauge the respondents' opinion regarding the effect that the change of key provisions in AIA A201 from 1951 to 1997 have had on the function of the architect. To recall, from Chapter 2.10 and encapsulated in Figure 8 of Chapter 2.10.1, the investigation for this study characterized the basic functions outlined in the AIA A201 required in the role of the architect as follows:

- **Primary lead** role: The architect plays the principal role in the work required for the contract administration during the construction phase.
- **Quasi-judicial** role: The architect plays the central role in deciding disputes, judging claims and quality of work, and acts as an arbiter in contract administration during the construction phase.
- **Secondary support** role: The architect provides assistance to the work required for the contract administration during the construction phase.

- **Supervisory** role: The architect performs a managerial or administrative role in contract administration during the construction phase.
- **Reviewer** role: The architect conducts reviews of the work required for contract administration during the construction phase.
- **Advisory** role: The architect acts only as an advisor to the contractual parties to conduct the work in contract administration during the construction phase.

Also, as discussed in Chapter 2.10.2, this research investigation characterizes the role of the architect, as follows:

- *Active* degree of participation
 - Primary Lead Role
 - Quasi-Judicial Role
- *Neutral (Mid)* degree of participation
 - Secondary Support Role
 - Supervisory Role
- *Passive* degree of participation
 - Reviewer Role
 - Advisory Role

Lastly, as illustrated in Chapter 5.5.1, Part III investigated opinions regarding the significance of the provisions to the construction phase and its importance to the function of the architect to perform during the contract administration during the construction phase.

The results of Part III of Phase II were tallied and tabulated leading to the following preliminary findings: Regarding the **Role of the Architect** provision: It appears from Figure 18 that role of the architect in the Role of the Architect provision of 1951 was viewed by the respondents as a quasi-judicial, secondary support, and/or advisor role. In 1997, it appears from Figure 18 that role of the architect in the Role of the Architect provision was viewed by the respondents as less quasi-judicial, secondary support and/or advisor role, and more as a reviewer. At the same time, the data shows from Figure 19 that the degree of the participation of the role of the architect was considered an active participation in 1951; and, in 1997, the degree of the participation is more passive. Thus, this preliminary analysis leads to the belief that role of the architect in the AIA A201 Role of the Architect provision diminished from 1951 to 1997.

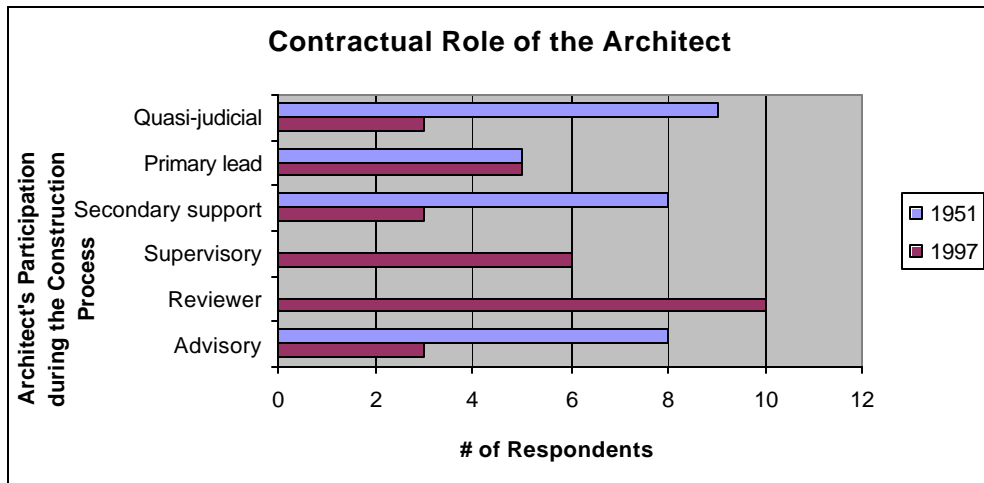


Figure 18: The Architect's Role in the AIA A201 Role of the Architect provision in 1951 and in 1997

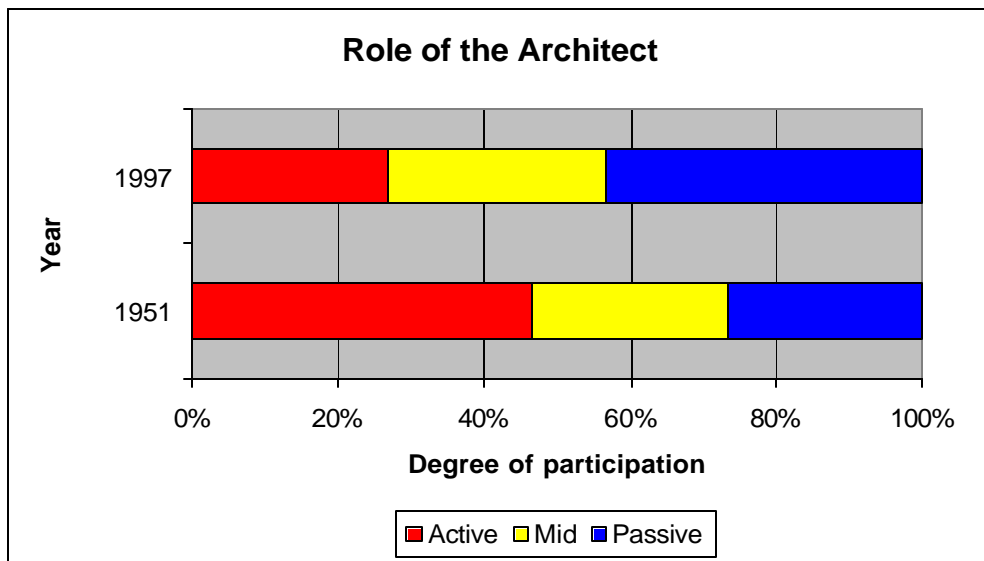


Figure 19: The Architect's Degree of Participation in the AIA A201 Role of the Architect Provision in 1951 and in 1997

Furthermore, the preliminary analysis, as shown by the below Figure 20, leads to the belief that the majority of the respondents agree that change in the Role of the Architect provision from 1951 to 1997 has had a material effect on construction and contract administration roles and responsibilities. And, the majority of the respondents agree that change in the Role of the Architect provision has directly affected the function of the Architect during the construction phase.

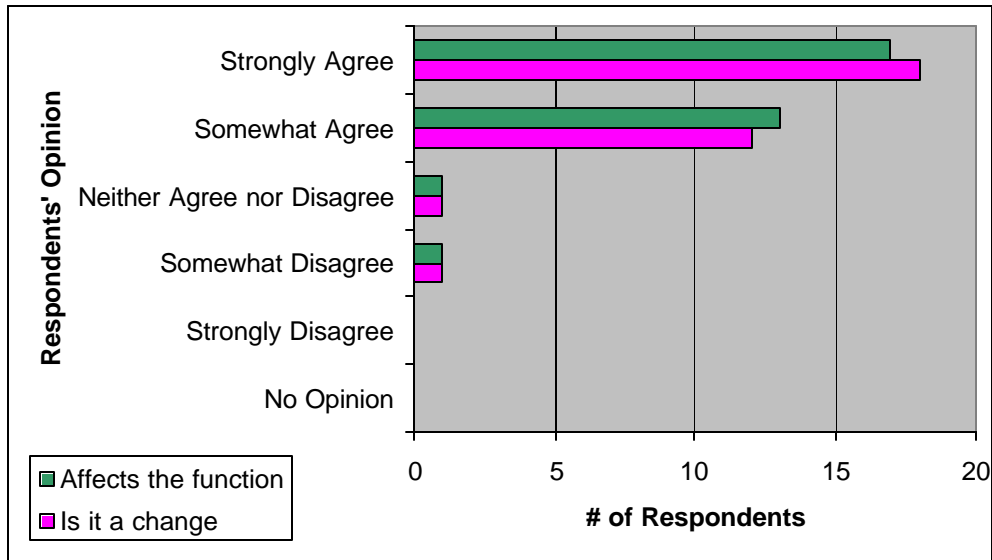


Figure 20: Change and Effect of the AIA A201 Role of the Architect Contract Provision

Regarding the **Dispute Resolution** provision: It appears from Figure 21 that the respondents viewed the role of the architect in the Dispute Resolution provision of 1951 as a quasi-judicial and/or primary lead role. In 1997, it appears from Figure 21 that role of the architect in the Dispute Resolution provision was viewed by the respondents as less quasi-judicial and/or primary lead role, and more as a reviewer and/or advisory role. At the same time, the data shows from Figure 22 that the degree of the participation of the role of the architect was greatly considered an active participation in 1951; and, in 1997, the degree of the participation is more passive. Thus, this preliminary analysis leads to the belief that role of the architect in the AIA A201 Dispute Resolution provision diminished from 1951 to 1997.

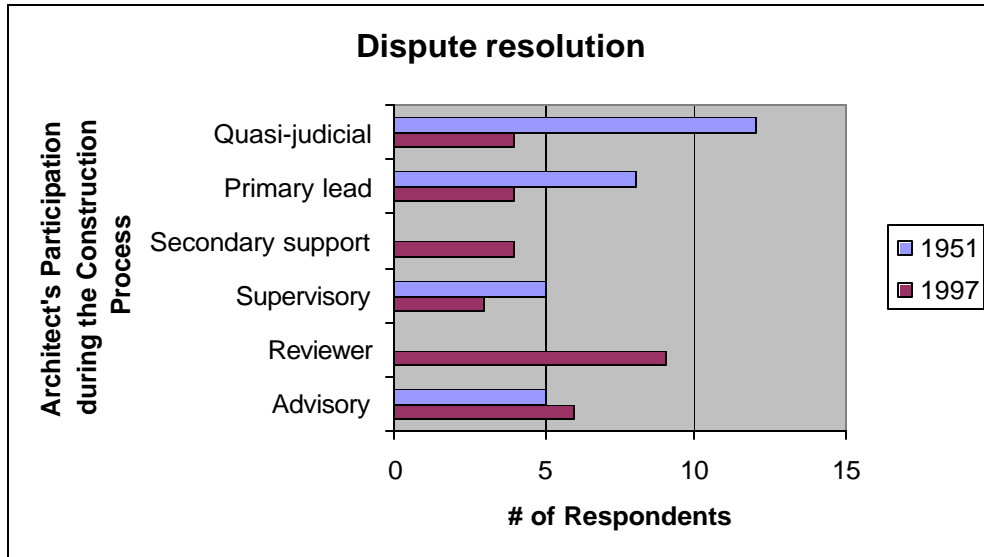


Figure 21: The Role of the Architect in the AIA A201 Dispute Resolution Provision in 1951 and in 1997

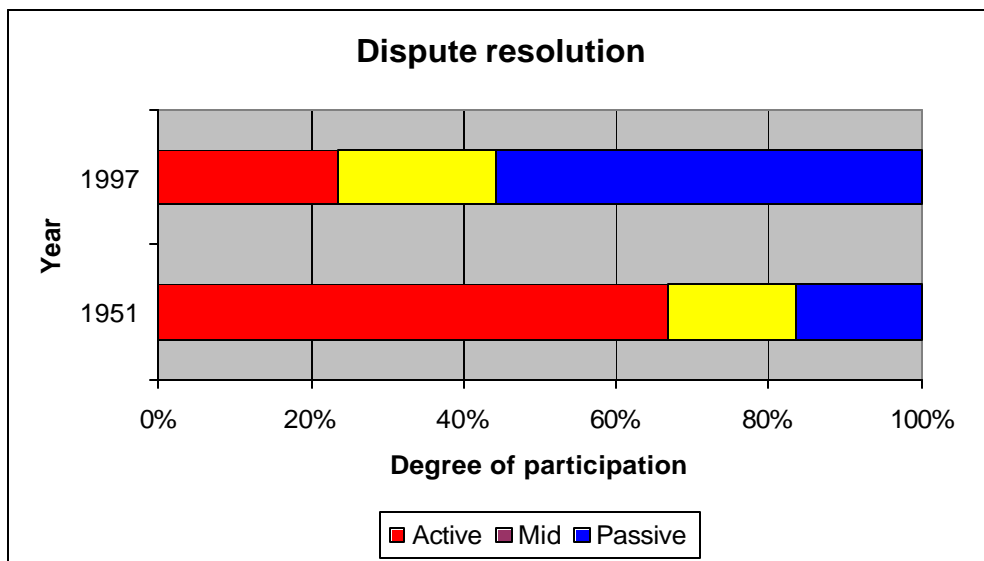


Figure 22: The Architect's Degree of Participation in the AIA A201 Dispute Resolution Provision in 1951 and in 1997

Furthermore, the preliminary analysis, as shown by the below Figure 23, leads to the belief that the majority of the respondents agree that change in the Dispute Resolution provision from 1951 to 1997 has had a material effect on construction and contract administration roles and responsibilities. And, the majority of the respondents agree that change in the Dispute Resolution provision has directly affected the function of the Architect during the construction phase.

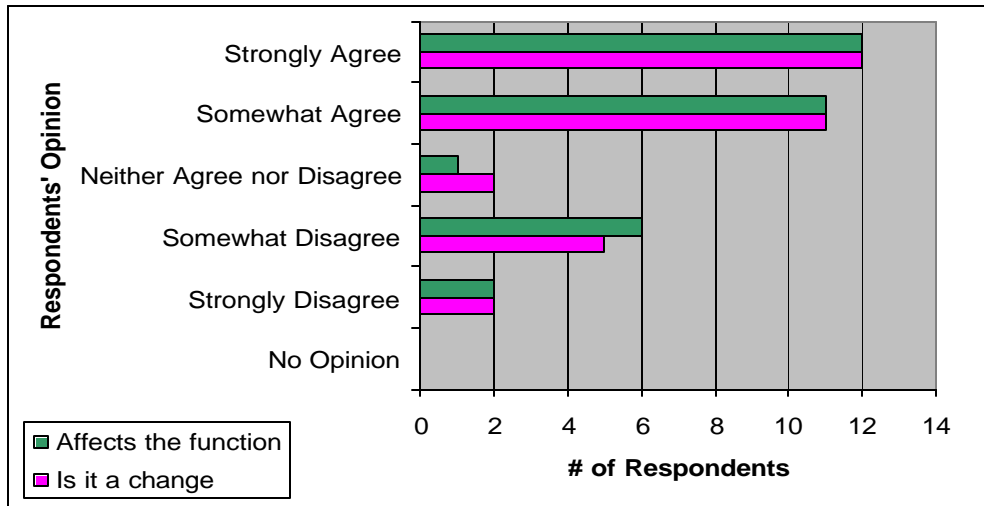


Figure 23: Change and Effect of the AIA A201 Dispute Resolution Contract Provision

Regarding the **Ownership of Documents** provision: It appears from Figure 24 that role of the architect in the 1951 Ownership of Documents provision was overwhelmingly viewed by the respondents as a quasi-judicial role. In 1997, it appears from Figure 24 that role of the architect in the Ownership of Documents provision was viewed by the respondents as substantially less quasi-judicial, and dispersedly primary lead, secondary, reviewer, and/or advisory role. At the same time, the data shows from Figure 25 that the degree of the participation of the role of the architect was overwhelmingly considered an active participation in 1951; and, in 1997, the degree of the participation is decreasingly active. Thus, this preliminary analysis leads to the belief that role of the architect in the AIA A201 Ownership of Documents provision diminished from 1951 to 1997.

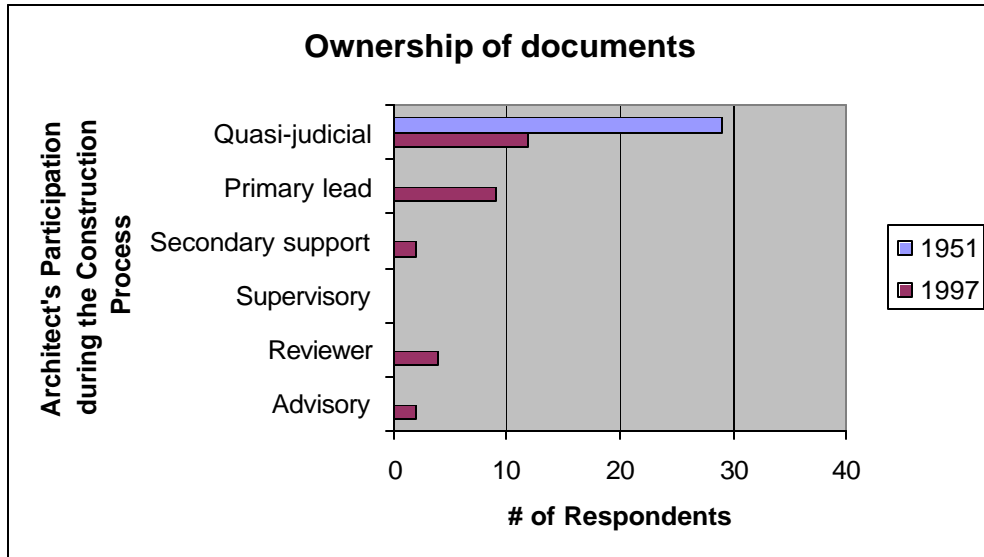


Figure 24: The Role of the Architect in the AIA A201 Ownership of Documents Provision in 1951 and in 1997

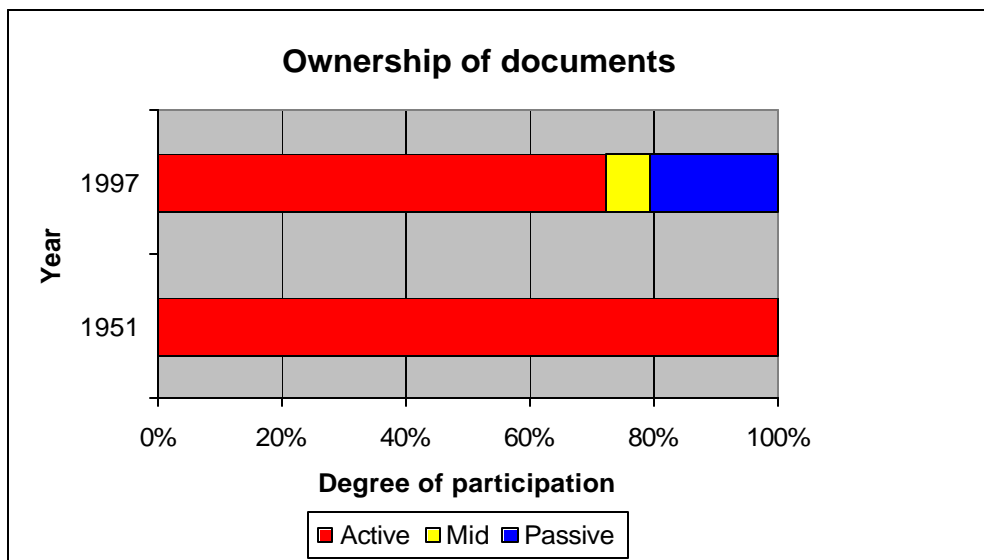


Figure 25: The Architect's Degree of Participation in the AIA A201 Ownership of Documents Provision in 1951 and in 1997

Furthermore, the preliminary analysis, as shown by the below Figure 26, leads to the belief that the majority of the respondents believe that change in the Ownership of Documents provision from 1951 to 1997 has **not** had a material effect on construction and contract administration roles and responsibilities. Yet, to the contrary, the results are evenly distributed in the direction of agreement. And, the majority of the respondents believe that change in the Ownership of Documents provision has **not** directly affected the function of the Architect during the construction phase. Again, the results are evenly distributed in the direction of agreement, as well.

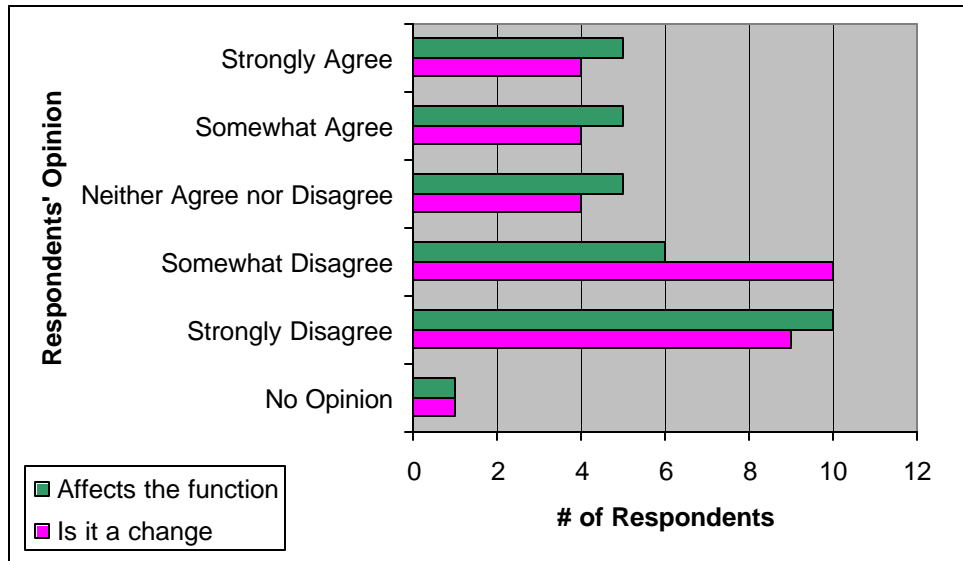


Figure 26: Change and Effect of the AIA A201 Ownership of Documents Contract Provision

Regarding the **Final Payment** provision: It appears from Figure 27 that role of the architect in the Final Payment provision of 1966 was highly viewed by the respondents as a quasi-judicial role. In 1997, it appears from Figure 27 that role of the architect in the Final Payment provision was viewed by the respondents as substantially less quasi-judicial, and increasingly more secondary support, supervisory, and/or reviewer role. At the same time, the data shows from Figure 28 that the degree of the participation of the role of the architect was greatly considered an active participation in 1966; and, in 1997, the degree of the participation is decreasingly active. Thus, this preliminary analysis leads to the belief that role of the architect in the AIA A201 Final Payment provision diminished from 1966 to 1997.

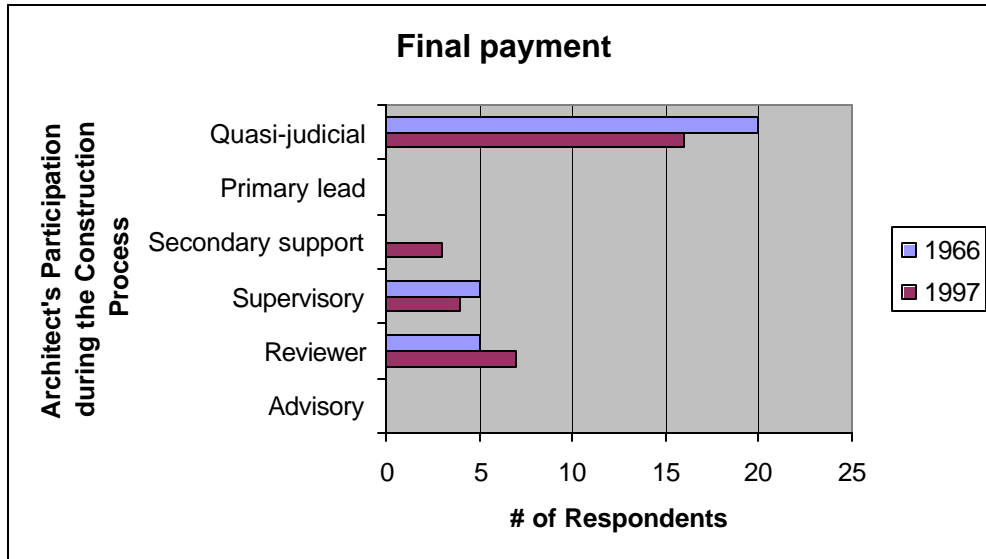


Figure 27: The Role of the Architect in the AIA A201 Final Payment Provision in 1966 and in 1997

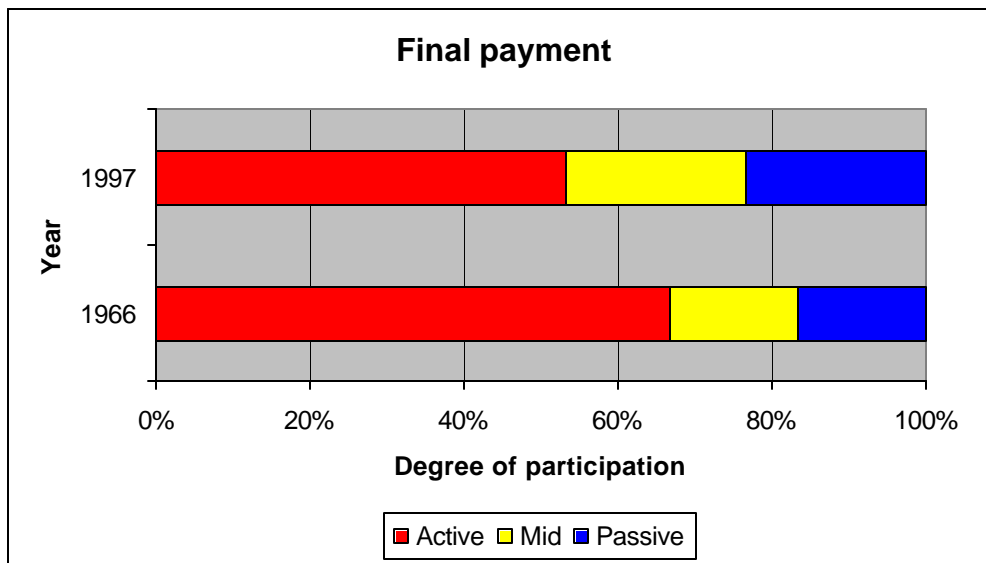


Figure 28: The Architect's Degree of Participation in the AIA A201 Final Payment Provision in 1966 and in 1997

Furthermore, the preliminary analysis, as shown by the below Figure 29, leads to the belief that the majority of the respondents believe that change in the Final Payment provision from 1966 to 1997 has **not** had a material effect on construction and contract administration roles and responsibilities. And, the majority of the respondents believe that change in the Final Payment provision has **not** directly affected the function of the Architect during the construction phase.

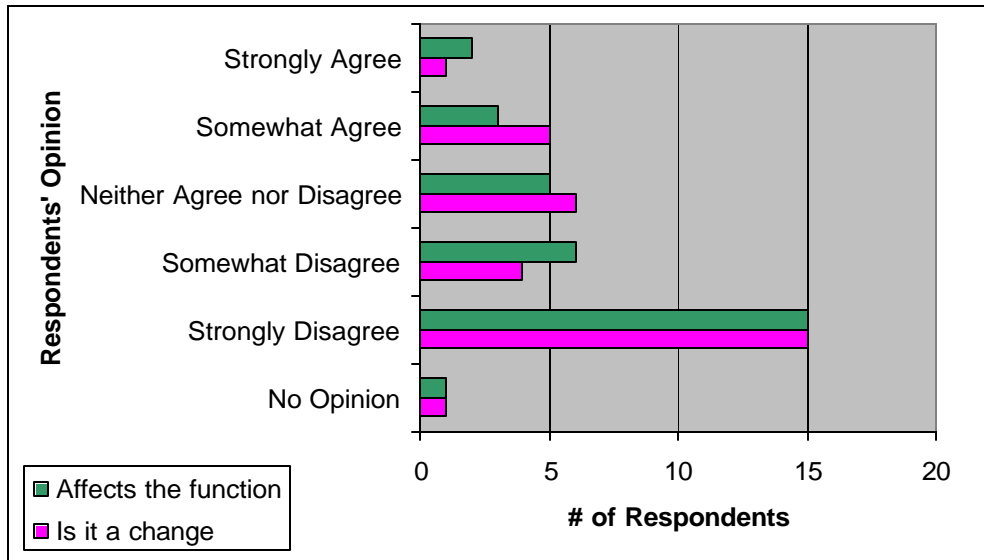


Figure 29: Change and Effect of the AIA A201 Final Payment Contract Provision

Regarding the **Claims for Extra Cost** provision: It appears from Figure 30 that role of the architect in the 1951 Claims for Extra Cost provision was viewed by the respondents as a quasi-judicial role. In 1997, it appears from Figure 30 that the respondents viewed the role of the architect in the Claims for Extra Cost provision as a slightly less quasi-judicial role. At the same time, the data shows from Figure 31 that the degree of the participation of the role of the architect was considered an active participation in 1951; and, in 1997, the degree of the participation is slightly less active. Thus, this preliminary analysis leads to the belief that role of the architect in the AIA A201 Claims for Extra Cost provision diminished from 1951 to 1997, but not substantial.

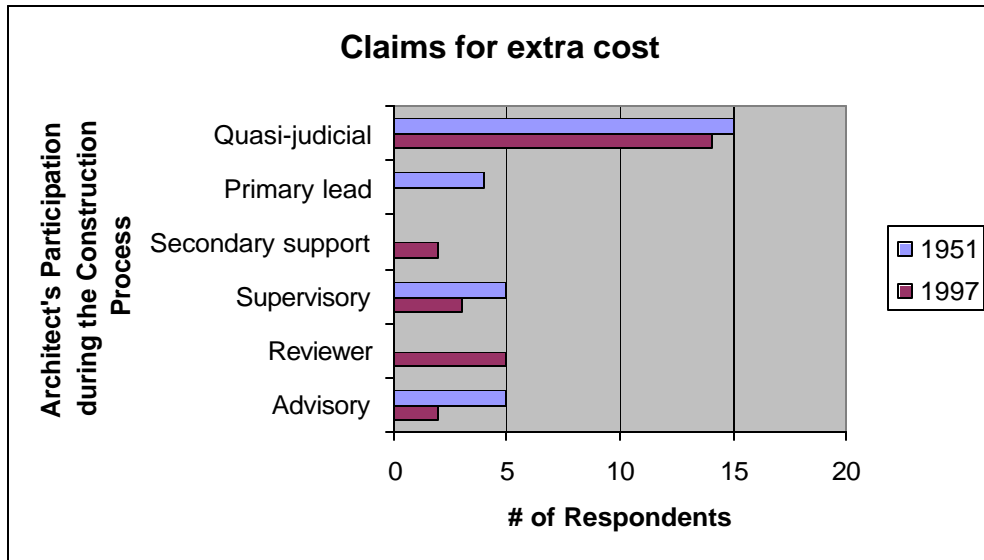


Figure 30: The Role of the Architect in the AIA A201 Claims for Extra Cost Provision in 1951 and in 1997

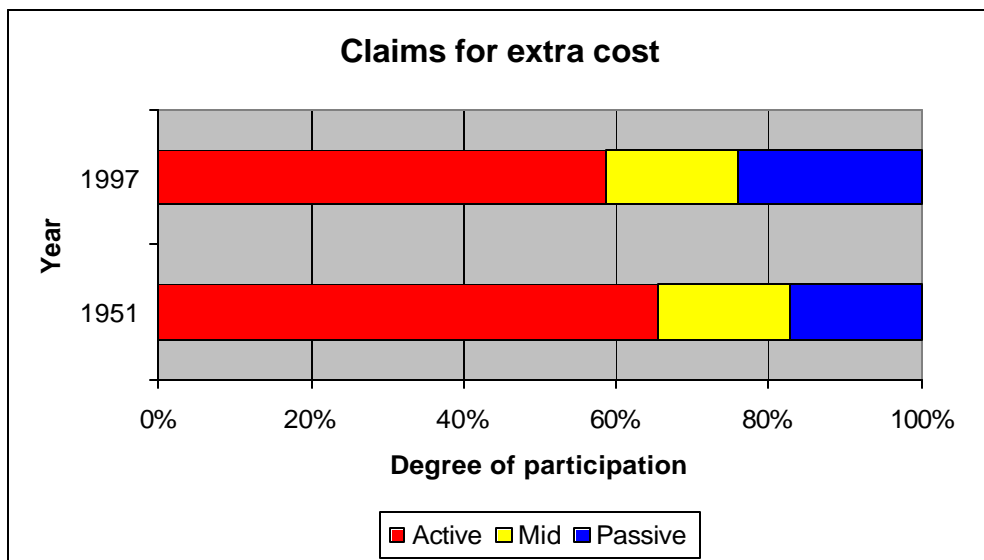


Figure 31: The Architect's Degree of Participation in the AIA A201 Claims for Extra Cost Provision in 1951 and in 1997

Furthermore, the preliminary analysis, as shown by the below Figure 32, leads to the belief that the majority of the respondents agree that change in the Claims for Extra Cost provision from 1951 to 1997 has had a material effect on construction and contract administration roles and responsibilities. And, the majority of the respondents agree that change in the Claims for Extra Cost provision has directly affected the function of the Architect during the construction phase.

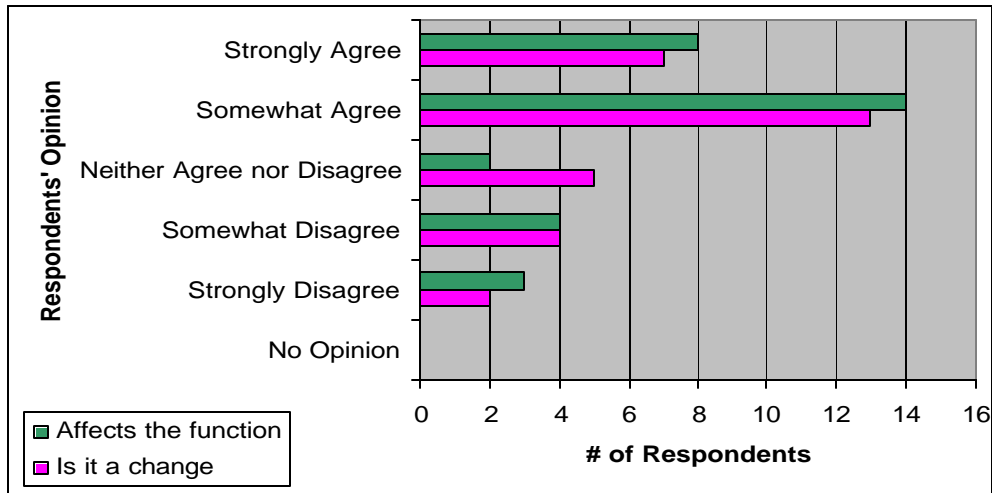


Figure 32: Change and Effect of the AIA A201 Claims for Extra Cost Contract Provision

Regarding the **Shop Drawings** provision: It appears from Figure 33 that the respondents viewed the role of the architect in the Shop Drawings provision of 1961 as a supervisory role. In 1997, it appears from Figure 33 that role of the architect in the Shop Drawings provision was also viewed by the respondents as a supervisory role. At the same time, the data shows from Figure 34 that the degree of the participation of the role of the architect was considered an active and mid-level (neutral) degree of participation in 1961; and, in 1997, the degree of the participation became substantially less active and more neutral and passive. Thus, this preliminary analysis leads to the belief that role of the architect in the AIA A201 Shop Drawings provision diminished from 1961 to 1997.

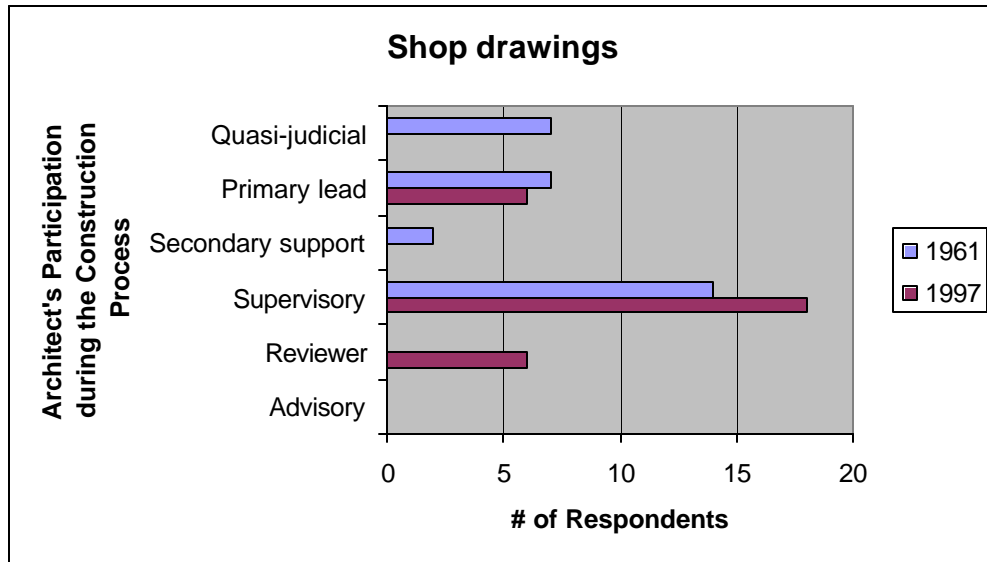


Figure 33: The Role of the Architect in the AIA A201 Shop Drawings Provision in 1961 and in 1997

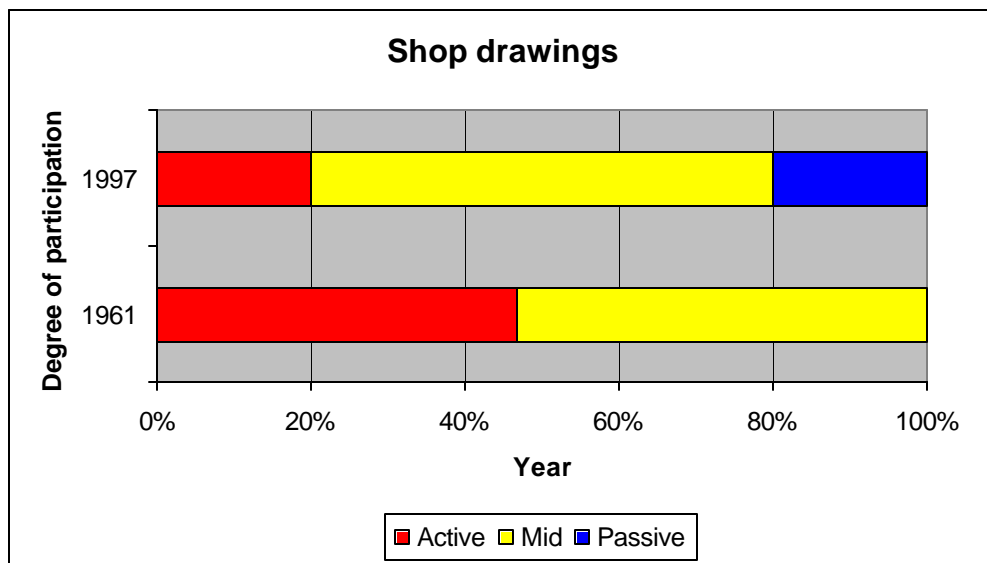


Figure 34: The Architect's Degree of Participation in the AIA A201 Shop Drawings Provision in 1961 and in 1997

Furthermore, the preliminary analysis, as shown by the below Figure 35, leads to the belief that the majority of the respondents agree that change in the Shop Drawings provision from 1961 to 1997 has had a material effect on construction and contract administration roles and responsibilities. And, the majority of the respondents agree that change in the Shop Drawings provision has directly affected the function of the Architect during the construction phase.

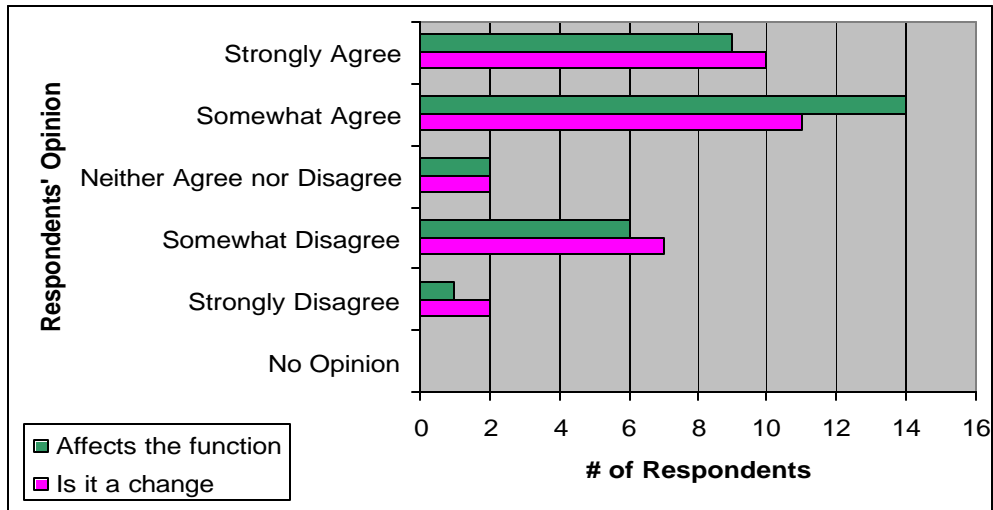


Figure 35: Change and Effect of the AIA A201 Shop Drawings Contract Provision

Regarding the **Changes in the Work** provision: It appears from Figure 36 that the respondents viewed the role of the architect in the Changes in the Work provision of 1951 was as primarily a quasi-judicial and/or a primary lead role. In 1997, it appears from Figure 36 that role of the architect in the Changes in the Work provision was also viewed by the respondents as a quasi-judicial, primary lead, and/or reviewer role. At the same time, the data shows from Figure 37 that the degree of the participation of the role of the architect was considered an active degree of participation in 1951; and, in 1997, the degree of the participation became substantially less active and more passive. Thus, this preliminary analysis leads to the belief that role of the architect in the AIA A201 Changes in the Work provision diminished from 1951 to 1997.

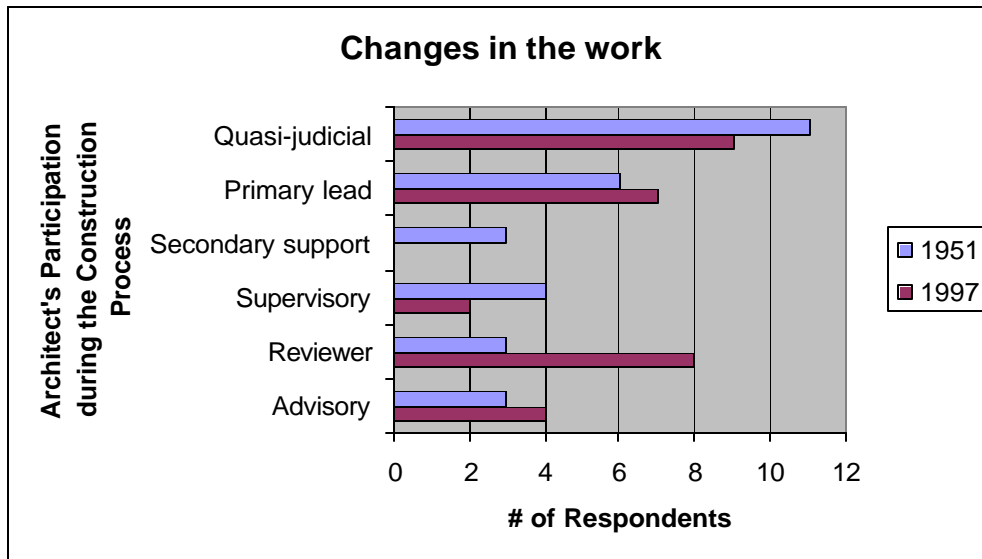


Figure 36: The Role of the Architect in the AIA A201 Changes in the Work Provision in 1951 and in 1997

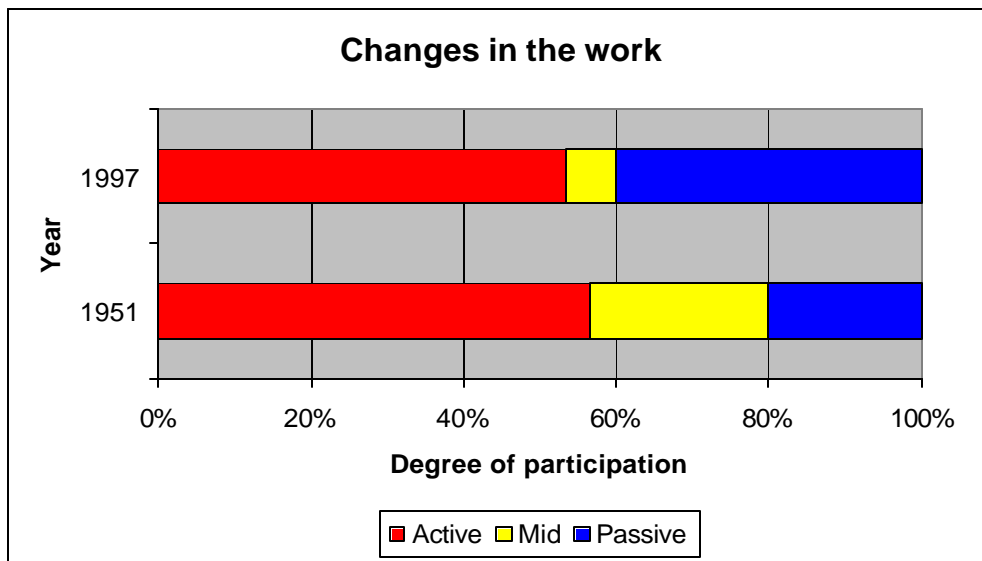


Figure 37: The Architect's Degree of Participation in the AIA A201 Changes in the Work Provision in 1951 and in 1997

Furthermore, the preliminary analysis, as shown by the below Figure 38, leads to the belief that the majority of the respondents agree that change in the Changes in the Work provision from 1951 to 1997 has had a material effect on construction and contract administration roles and responsibilities. And, the majority of the respondents agree that change in the Changes in the Work provision has directly affected the function of the Architect during the construction phase.

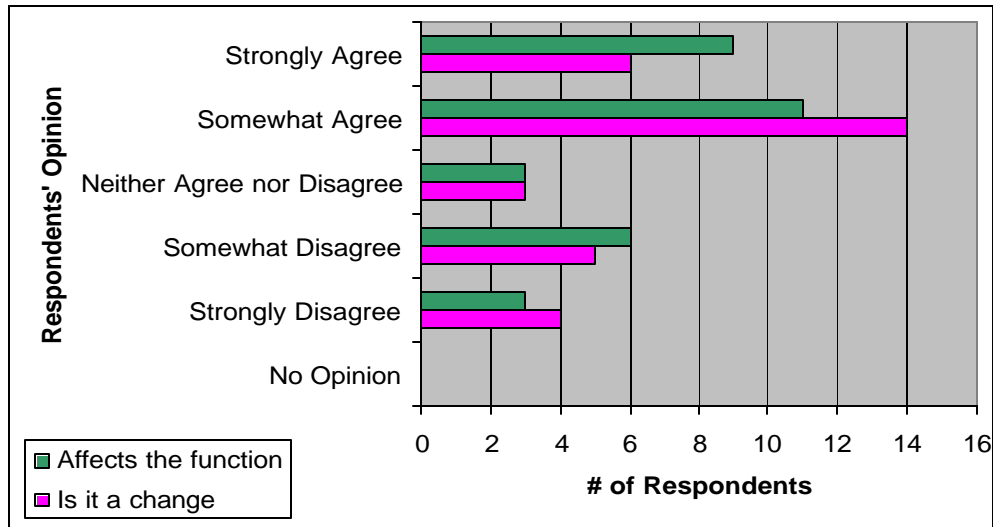


Figure 38: Change and Effect of the AIA A201 Changes in the Work Contract Provision

5.6.2 STEP 2 - STATISTICAL ANALYSIS OF PART III OF PHASE II

From the preliminary findings identified from Step 1, hypotheses were developed and the respective statistical tests were conducted (such as the Single and Paired Sample T-test, and the Wilcoxon Test described in Chapter 3.3.4.2) to confirm or deny the preliminary findings.

Firstly, the baseline of the statistical analysis is the formalization of research hypotheses. The Phase II questionnaire was designed to compare the role/function of the architect/design professional in different contract provisions in 1951 and in 1997, e.g., estimating the contractual role of the architect in 1951 and then later in 1997. Consequently, the questions produced individual opinions on the role of the architect in a provision of 1951 and the same provision of 1997, which aimed to identify that over time, change in the key provisions of general conditions affected the function of the design professional (General sample hypothesis: The contractual role of the architect in a key provision diminished from 1951 to 1997.) In addition, questions were asked to ascertain whether the key provisions has a material effect on the construction phase and contract administration (General sample hypothesis: the key provision from 1951 to 1997 has a material effect on the construction phase and contract administration), and whether the provision is significant to the role of the architect/design professional (General sample hypothesis: the key provision from 1951 to 1997 has a material effect on the function of the architect).

Then, the Paired Sample T-test and Wilcoxon Test were used to determine whether there exists a significant statistical difference between year 1951 and year 1997, thereby identifying change in the role of the architect in a key provision of general conditions. With the paired data obtained from the matrix, as in the example of Part III Questions 7 illustrated in Chapter 5.5.1, the statistical difference between observations in 1951 and 1997 are checked against the universally accepted p-value of 0.05, e.g., if the difference is less than 0.05 and has a negative mean difference, it would be concluded that the function of the architect diminished from 1951 to 1997. Below are step-by-step illustrations of the statistical analysis, which were recurrently used for the proceedings for all questions of Part III: Key AIA A201 Provisions Questions 7a through 7g (Q7 – Q34).

For example,

Hypothesis: The contractual role of the architect in the **Dispute Resolution** provision diminished from 1951 to 1997.

H₀ (null hypothesis): The mean score for the contractual role of the architect in the **Dispute Resolution** provision in 1951 is equal to the mean score for the contractual role of the architect in the **Dispute Resolution** provision in 1997. (In other words, the contractual role did not change from 1951 to 1997.)

H_A (alternative hypothesis): The mean score for the contractual role of the architect in the **Dispute Resolution** provision in 1951 is less than the mean score for the contractual role of the architect in the **Dispute Resolution** provision in 1997. (In other words, the contractual role diminished from 1951 to 1997.)

Test Method: Paired Sample T-test and Wilcoxon Test

Test Results: For the Paired Sample Ttest, the p-value is 0.04, which is less than the universally accepted value of 0.05; and there exists a significant negative mean difference (-0.78) between scores of 1951 and the scores of 1997. Therefore, the null hypothesis (*H₀*) is rejected in favor of the alternative hypothesis (*H_A*). The

Wilcoxon Test for two related samples was conducted and observed a significance of $0.032 < 0.05$, which supports the Paired Sample T-test.

Conclusion: The contractual role of the architect in the **Dispute Resolution** provision diminished from 1951 to 1997, which confirmed the results of the preliminary analysis of Step 1 shown in Figure 21 and Figure 22.

Lastly, as discussed in Chapter 3.3.4, the Single Sample T-test was used for statistical analysis to examine whether the key provisions have a material effect on the construction phase and contract administration and whether the provision is significant to the role of the architect/design professional. The single sample ttest determined if the reaction of the survey participants is on average different from neutral. Since neutral (nor 'agree' nor 'disagree') has value of three (3) on the data scale (See Appendix C3), the data sample was tested against this value of '3' to determine whether the participants' opinion is skewed in the direction of 'agreement' or 'disagreement' with the statement questioned in the survey. The difference from the value of "3" is judged as significant, if the corresponding p-value is less than the universally accepted significant value of 0.05. Then, it would be concluded that the change in the provision from 1951 to 1997 has had a material effect on the construction phase and contract administration, and that the change in the provision from 1951 to 1997 has had a material effect on the function of the architect.

For example,

Hypothesis: The change in the **Dispute Resolution** provision from 1951 to 1997 has a material effect on the construction phase and contract administration.

H₀: The mean score for the respondent's opinion on the material effect of the **Dispute Resolution** provision on the construction phase and contract administration is equal to the neutral value of 3. (In other words, the respondent 'neither agrees' nor 'disagrees' with the hypothesis.)

H_A: The mean score for the respondent's opinion on the material effect of the **Dispute Resolution** provision on the construction phase and contract administration is less than the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.002, which is less than the universally accepted value of 0.05, and a mean difference of -0.78 . Hence, the mean score for the respondent's opinion is considered less than neutral value of 3. Therefore, the null hypothesis (*H₀*) is rejected in favor of the alternative hypothesis (*H_A*).

Conclusion: The change in the **Dispute Resolution** provision from 1951 to 1997 has had a material effect on the construction phase and contract administration, which confirmed the results of the preliminary analysis of Step 1 shown in Figure 23.

Hypothesis: The change in the **Dispute Resolution** provision from 1951 to 1997 has a material effect on the function of the architect.

H₀: The mean score for the respondent's opinion on the material effect of the **Dispute Resolution** provision on the function of the architect is equal to the neutral value of 3. (In other words, the respondent 'neither agrees' nor 'disagrees' with the hypothesis.)

H_A: The mean score for the respondent's opinion on the material effect of the **Dispute Resolution** provision on the function of the architect is less than the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: The p-value is 0.001, which is less than the universally accepted value of 0.05 and there is a mean difference of -0.81 . Hence, the mean score for the respondent's opinion is significantly less than neutral value of 3. Therefore, the null hypothesis (H_0) is rejected in favor of the alternative hypothesis (H_A).

Conclusion: The change in the **Dispute Resolution** provision from 1951 to 1997 has directly affected the function of the architect, which confirmed the results of the preliminary analysis of Step 1 shown in Figure 23.

Below, Figure 39 provides a summary in the following matrices of the analysis of each provision, as performed above. Chapter 5.6.3 reports the findings of Phase II. Complete results of the test statistics are provided in Appendix C5 and the complete interpretations of the analyses are detailed in the Appendix C6.

For further examination, identical statistical analysis was conducted on the data comparing the conclusions of the whole sampling population versus the conclusions of the population segmented by the professional categories of the respondents', i.e. Architects/Engineers/Owners/Others (7 total respondents), Construction Managers (8 total respondents), General Contractors (7 total respondents), and Lawyers (10 total respondents). Figure 40 provides a summary of the analysis of each provision.

For instance, survey question 7c investigates the Ownership of Documents provision of AIA A201. As reported in the summaries of Figure 39 the statistical analysis, the whole sampling population agrees with the alternative hypothesis that "the contractual role of the architect in the Ownership of the Documents provision diminished from 1951 to 1997." In comparison to the whole sampling population, Figure 40 reports that the sampling population of the architects/engineers/owners, construction managers, general contractors, and the lawyers agree with the premise that "the contractual role of the architect in the Ownership of the Documents provision diminished from 1951 to 1997."

On the other hand, the statistical analysis reveals that the whole sampling population disagrees with the alternative hypothesis that "the Ownership of Documents provision from 1951 to 1997 has a material effect on the construction phase and contract administration." The general contractors and lawyers are in line with the whole sampling population that "the Ownership of Documents provision from 1951 to 1997 has not had a material effect on the construction phase and contract administration." Whereas the architects/engineers/owners and construction managers believe that "the Ownership of Documents provision from 1951 to 1997 has a material effect on the construction phase and contract administration."

At the same time, the architects/engineers/owners, general contractors, and lawyers agree with the whole sampling population that "the Ownership of Documents provision from 1951 to 1997 has not had a material effect on the function of the architect", which disagrees with the alternative hypothesis that the construction managers believe that "the Ownership of Documents provision from 1951 to 1997 has had a material effect on the function of the architect." In brief, Figure 40 shows the alignment of constituencies' opinions with the sampling population as a whole.

Figure 39: Summary of the Statistical Analysis of Each of the Seven (7) investigated Key Provisions

Survey Question	Survey Question's Sequential Order	Contract Provision	Null Hypothesis	Alternative Hypothesis	Statistical Analysis						Results	Conclusion
					Test	Parametric p-value (mean difference)	Source: page # of App. D3	Test	Non-parametric p-value (mean difference)	Source: page # of App. D3		
7a (1)	Q7 & Q8	Role of the Architect	The contractual role of the architect in the Role of the Architect provision did <u>not</u> diminish from 1951 to 1997.	The contractual role of the architect in the Role of the Architect provision diminished from 1951 to 1997.	Paired T-test	0.001 (-1.81)	1	Wilcoxon Test	0.001	1	The null hypothesis is rejected in favor of the alternative hypothesis.	The contractual role of the architect in the Role of the Architect provision diminished from 1951 to 1997.
7a (2)	Q9	Role of the Architect	The Role of the Architect provision from 1951 to 1997 has <u>no</u> substantial effect on the construction process and contract administration.	The Role of the Architect provision from 1951 to 1997 has a substantial effect on the construction process and contract administration.	Single T-test	0.001 (-1.44)	2	n/a	n/a	n/a	The null hypothesis is rejected in favor of the alternative hypothesis.	The change in the Role of the Architect provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration.
7a (2) ii	Q10	Role of the Architect	The Role of the Architect provision from 1951 to 1997 has <u>no</u> substantial effect on the function of the architect.	The Role of the Architect provision from 1951 to 1997 has a substantial effect on the function of the architect.	Single T-test	0.001 (-1.47)	2	n/a	n/a	n/a	The null hypothesis is rejected in favor of the alternative hypothesis.	The change in the Role of the Architect provision from 1951 to 1997 has had a substantial effect on the function of the architect.

Survey Question	Survey Question's Sequential Order	Contract Provision	Null Hypothesis	Alternative Hypothesis	Statistical Analysis						Results	Conclusion
					Test	Parametric p-value (mean difference)	Source: page # of App. D3	Test	Non-parametric p-value (mean difference)	Source: page # of App. D3		
7b (1)	Q11 & Q12	Dispute Resolution	The contractual role of the architect in the Dispute Resolution provision did <u>not</u> diminish from 1951 to 1997.	The contractual role of the architect in the Dispute Resolution provision diminished from 1951 to 1997.	Paired T-test	0.040 (-0.78)	3	Wilcoxon Test	0.032	3	The null hypothesis is rejected in favor of the alternative hypothesis.	The contractual role of the architect in the Dispute Resolution provision diminished from 1951 to 1997.
7b (2)	Q13	Dispute Resolution	The Dispute Resolution provision from 1951 to 1997 has no substantial effect on the construction process and contract administration.	The Dispute Resolution provision from 1951 to 1997 has a substantial effect on the construction process and contract administration.	Single T-test	0.002 (-0.78)	4	n/a	n/a	n/a	The null hypothesis is rejected in favor of the alternative hypothesis.	The change in the Dispute Resolution provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration.
7b (2) ii	Q14	Dispute Resolution	The Dispute Resolution provision from 1951 to 1997 has <u>no</u> substantial effect on the function of the architect.	The Dispute Resolution provision from 1951 to 1997 has a substantial effect on the function of the architect.	Single T-test	0.001 (-0.81)	4	n/a	n/a	n/a	The null hypothesis is rejected in favor of the alternative hypothesis.	The change in the Dispute Resolution provision from 1951 to 1997 has had a substantial effect on the function of the architect.

Survey Question	Survey Question's Sequential Order	Contract Provision	Null Hypothesis	Alternative Hypothesis	Statistical Analysis						Results	Conclusion
					Test	Parametric p-value (mean difference)	Source: page # of App. D3	Test	Non-parametric p-value (mean difference)	Source: page # of App. D3		
7c (1)	Q15 & Q16	Ownership of Documents	The contractual role of the architect in the Ownership of Documents provision did <u>not</u> diminish from 1951 to 1997.	The contractual role of the architect in the Ownership of Documents provision diminished from 1951 to 1997.	Paired T-test	0.001 (-1.06)	5	Wilcoxon Test	0.001	5	The null hypothesis is rejected in favor of the alternative hypothesis.	The contractual role of the architect in the Ownership of the Documents provision diminished from 1951 to 1997.
7c (2)	Q17	Ownership of Documents	The Ownership of Documents provision from 1951 to 1997 has no substantial effect on the construction process and contract administration.	The Ownership of Documents provision from 1951 to 1997 has a substantial effect on the construction process and contract administration.	Single T-test	0.379 (+0.25)	6	n/a	n/a	n/a	The alternative hypothesis is rejected in favor of the null hypothesis.	The change in the Ownership of Documents provision from 1951 to 1997 has not had a substantial effect on the construction process and contract administration.
7c (2) ii	Q18	Ownership of Documents	The Ownership of Documents provision from 1951 to 1997 has <u>no</u> substantial effect on the function of the architect.	The Ownership of Documents provision from 1951 to 1997 has a substantial effect on the function of the architect.	Single T-test	0.136 (+0.41)	6	n/a	n/a	n/a	The alternative hypothesis is rejected in favor of the null hypothesis.	The change in the Ownership of Documents provision from 1951 to 1997 has not had a substantial effect on the function of the architect.

Survey Question	Survey Question's Sequential Order	Contract Provision	Null Hypothesis	Alternative Hypothesis	Statistical Analysis						Results	Conclusion
					Test	Parametric p-value (mean difference)	Source: page # of App. D3	Test	Non-parametric p-value (mean difference)	Source: page # of App. D3		
7d (1)	Q19 & Q20	Final Payment	The contractual role of the architect in the Final Payment provision did not diminish from 1951 to 1997.	The contractual role of the architect in the Final Payment provision diminished from 1951 to 1997.	Paired T-test	0.508 (-0.25)	7	Wilcoxon Test	0.44	7	The alternative hypothesis is rejected in favor of the null hypothesis.	The contractual role of the architect in the Final Payment provision did not diminish from 1966 to 1997.
7d (2)	Q21	Final Payment	The Final Payment provision from 1951 to 1997 has no substantial effect on the construction process and contract administration.	The Final Payment provision from 1951 to 1997 has a substantial effect on the construction process and contract administration.	Single T-test	0.003 (+0.81)	8	n/a	n/a	n/a	The alternative hypothesis is rejected in favor of the null hypothesis.	The change in the Final Payment provision from 1966 to 1997 has not had a substantial effect on the construction process and contract administration.
7d (2) ii	Q22	Final Payment	The Final Payment provision from 1951 to 1997 has no substantial effect on the function of the architect.	The Final Payment provision from 1951 to 1997 has a substantial effect on the function of the architect.	Single T-test	0.006 (+0.75)	8	n/a	n/a	n/a	The alternative hypothesis is rejected in favor of the null hypothesis.	The change in the Final Payment provision from 1951 to 1997 has not had a substantial effect on the function of the architect.

Survey Question	Survey Question's Sequential Order	Contract Provision	Null Hypothesis	Alternative Hypothesis	Statistical Analysis						Results	Conclusion
					Test	Parametric p-value (mean difference)	Source: page # of App. D3	Test	Non-parametric p-value (mean difference)	Source: page # of App. D3		
7e (1)	Q23 & Q24	Claims for Extra Cost	The contractual role of the architect in the Claims for Extra Cost provision did <u>not</u> diminish from 1951 to 1997.	The contractual role of the architect in the Claims for Extra Cost provision diminished from 1951 to 1997.	Paired T-test	0.077 (-0.53)	9	Wilcoxon Test	0.094	9	The alternative hypothesis is rejected in favor of the null hypothesis.	The contractual role of the architect in the Claims for Extra Cost provision did not diminish from 1951 to 1997.
7e (2)	Q25	Claims for Extra Cost	The Claims for Extra Cost provision from 1951 to 1997 has <u>no</u> substantial effect on the construction process and contract administration.	The Claims for Extra Cost provision from 1951 to 1997 has a substantial effect on the construction process and contract administration.	Single T-test	0.004 (-0.72)	10	n/a	n/a	n/a	The null hypothesis is rejected in favor of the alternative hypothesis.	The change in the Claims for Extra Cost provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration.
7e (2) ii	Q26	Claims for Extra Cost	The Claims for Extra Cost provision from 1951 to 1997 has no substantial effect on the function of the architect.	The Claims for Extra Cost provision from 1951 to 1997 has a substantial effect on the function of the architect.	Single T-test	0.003 (-0.69)	10	n/a	n/a	n/a	The null hypothesis is rejected in favor of the alternative hypothesis.	The change in the Claims for Extra Cost provision from 1951 to 1997 has had a substantial effect on the function of the architect.

Survey Question	Survey Question's Sequential Order	Contract Provision	Null Hypothesis	Alternative Hypothesis	Statistical Analysis						Results	Conclusion
					Test	Parametric p-value (mean difference)	Source: page # of App. D3	Test	Non-parametric p-value (mean difference)	Source: page # of App. D3		
7f (1)	Q27 & Q28	Shop Drawings	The contractual role of the architect in the Shop Drawings provision did <u>not</u> diminish from 1951 to 1997.	The contractual role of the architect in the Shop Drawings provision diminished from 1951 to 1997.	Paired T-test	0.001 (-1.00)	11	Wilcoxon Test	0.001	11	The null hypothesis is rejected in favor of the alternative hypothesis.	The contractual role of the architect in the Shop Drawings provision diminished from 1961 to 1997.
7f (2)	Q29	Shop Drawings	The Shop Drawings provision from 1951 to 1997 has <u>no</u> substantial effect on the construction process and contract administration.	The Shop Drawings provision from 1951 to 1997 has a substantial effect on the construction process and contract administration.	Single T-test	0.001 (-0.75)	12	n/a	n/a	n/a	The null hypothesis is rejected in favor of the alternative hypothesis.	The change in the Shop Drawings provision from 1961 to 1997 has had a substantial effect on the construction process and contract administration.
7f (2) ii	Q30	Shop Drawings	The Shop Drawings provision from 1951 to 1997 has <u>no</u> substantial effect on the function of the architect.	The Shop Drawings provision from 1951 to 1997 has a substantial effect on the function of the architect.	Single T-test	0.011 (-0.63)	12	n/a	n/a	n/a	The null hypothesis is rejected in favor of the alternative hypothesis.	The change in the Shop Drawings provision from 1951 to 1997 has had a substantial effect on the function of the architect.

Survey Question	Survey Question's Sequential Order	Contract Provision	Null Hypothesis	Alternative Hypothesis	Statistical Analysis						Results	Conclusion
					Test	Parametric p-value (mean difference)	Source: page # of App. D3	Test	Non-parametric p-value (mean difference)	Source: page # of App. D3		
7g (1)	Q31 & Q32	Changes in the Work	The contractual role of the architect in the Changes in the Work provision did not diminish from 1951 to 1997.	The contractual role of the architect in the Changes in the Work provision diminished from 1951 to 1997.	Paired T-test	0.155 (-0.38)	13	Wilcoxon Test	0.166	13	The alternative hypothesis is rejected in favor of the null hypothesis.	The contractual role of the architect in the Changes in the Work provision did not diminish from 1951 to 1997.
7g (2)	Q33	Changes in the Work	The Changes in the Work provision from 1951 to 1997 has <u>no</u> substantial effect on the construction process and contract administration.	The Changes in the Work provision from 1951 to 1997 has a substantial effect on the construction process and contract administration.	Single T-test	0.033 (-0.53)	14	n/a	n/a	n/a	The null hypothesis is rejected in favor of the alternative hypothesis.	The change in the Changes in the Work provision from 1951 to 1997 has had a substantial effect on the construction process and contractual administration.
7g (2) ii	Q34	Changes in the Work	The Changes in the Work provision from 1951 to 1997 has no substantial effect on the function of the architect.	The Changes in the Work provision from 1951 to 1997 has a substantial effect on the function of the architect.	Single T-test	0.049 (-0.47)	14	n/a	n/a	n/a	The null hypothesis is rejected in favor of the alternative hypothesis.	The change in the Changes in the Work provision from 1951 to 1997 has had a substantial effect on the function of the architect.

Figure 40: Summary of the Opinions of Each of the Seven (7) investigated Key Provisions compared against the sampling population of the Architects/Engineers/Owners, Construction Managers, General Contractors, and Lawyers

Survey Question	Survey Question's Sequential Order	Contract Provision	Alternative Hypothesis	32-Whole Population [median score]	7-[A]rchitects/Engineers/Owners/Others (median score)	8-[C]onstruction Managers (median score)	7-[G]eneral Contractors (median score)	10-[L]awyers (median score)
7a (1)	Q7 & Q8	Role of the Architect	The contractual role of the architect in the Role of the Architect provision diminished from 1951 to 1997	The contractual role of the architect in the Role of the Architect provision diminished from 1951 to 1997. [(2) Primary Lead & (4.5) Reviewer]	The contractual role of the architect in the Role of the Architect provision diminished from 1951 to 1997. [(1.5) Primary Lead & (3.5) Secondary Support]	The contractual role of the architect in the Role of the Architect provision diminished from 1951 to 1997. [(3) Supervisory & (5) Reviewer]	The contractual role of the architect in the Role of the Architect provision diminished from 1951 to 1997. [(2) Primary Lead & (4) Secondary Support]	The contractual role of the architect in the Role of the Architect provision diminished from 1951 to 1997. [(2) Primary Lead & (5) Reviewer]
7a (2)	Q9	Role of the Architect	The Role of the Architect provision from 1951 to 1997 has a substantial effect on the construction process and contract administration	The change in the Role of the Architect provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration. [(1) Strongly Agree]	The change in the Role of the Architect provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration. [(2) Somewhat agree]	The change in the Role of the Architect provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration. [(1) Strongly agree]	The change in the Role of the Architect provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration. [(2) Somewhat agree]	The change in the Role of the Architect provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration. [(1) Strongly agree]
7a (2) ii	Q10	Role of the Architect	The Role of the Architect provision from 1951 to 1997 has a substantial effect on the function of the architect	The change in the Role of the Architect provision from 1951 to 1997 has had a substantial effect on the function of the architect. [(1) Strongly Agree]	The change in the Role of the Architect provision from 1951 to 1997 has had a substantial effect on the function of the architect. [(2) Somewhat agree]	The change in the Role of the Architect provision from 1951 to 1997 has had a substantial effect on the function of the architect. [(1.5) Somewhat agree]	The change in the Role of the Architect provision from 1951 to 1997 has had a substantial effect on the function of the architect. [(1) Strongly agree]	The change in the Role of the Architect provision from 1951 to 1997 has had a substantial effect on the function of the architect. [(1) Strongly agree]

Survey Question	Survey Question's Sequential Order	Contract Provision	Alternative Hypothesis	32-Whole Population [median score]	7-[A]rchitects/Engineers/Owners/Others (median score)	8-[C]onstruction Managers (median score)	7-[G]eneral Contractors (median score)	10-[L]awyers (median score)
7b (1)	Q11 & Q12	Dispute Resolution	The contractual role of the architect in the Dispute Resolution provision diminished from 1951 to 1997.	The contractual role of the architect in the Dispute Resolution provision diminished from 1951 to 1997. [(2) Primary Lead & (3.5) Supervisory]	The contractual role of the architect in the Dispute Resolution provision did not diminish from 1951 to 1997. [(2) Primary Lead & (2.5) Supervisory]	The contractual role of the architect in the Dispute Resolution provision did not diminish from 1951 to 1997. [(1.5) Primary Lead & (2) Primary Lead]	The contractual role of the architect in the Dispute Resolution provision diminished from 1951 to 1997. [(4) Secondary support & (4) Secondary support]	The contractual role of the architect in the Dispute Resolution provision diminished from 1951 to 1997. [(4) Secondary support & (4) Secondary support]
7b (2)	Q13	Dispute Resolution	The Dispute Resolution provision from 1951 to 1997 has a substantial effect on the construction process and contract administration.	The change in the Dispute Resolution provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration. [(2) Somewhat agree]	The change in the Dispute Resolution provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration. [(1.5) Somewhat agree]	The change in the Dispute Resolution provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration. [(2) Somewhat agree]	The change in the Dispute Resolution provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration. [(1) Strongly agree]	The change in the Dispute Resolution provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration. [(2) Somewhat agree]
7b (2) ii	Q14	Dispute Resolution	The Dispute Resolution provision from 1951 to 1997 has a substantial effect on the function of the architect.	The Dispute Resolution provision from 1951 to 1997 has had a substantial effect on the function of the architect. [(2) Somewhat agree]	The Dispute Resolution provision from 1951 to 1997 has had a substantial effect on the function of the architect. [(1.5) Somewhat agree]	The Dispute Resolution provision from 1951 to 1997 has had a substantial effect on the function of the architect. [(2.5) Neither agree nor disagree]	The Dispute Resolution provision from 1951 to 1997 has had a substantial effect on the function of the architect. [(1) Strongly agree]	The Dispute Resolution provision from 1951 to 1997 has had a substantial effect on the function of the architect. [(2) Somewhat agree]

Survey Question	Survey Question's Sequential Order	Contract Provision	Alternative Hypothesis	32-Whole Population [median score]	7-[A]rchitects/Engineers/Owners/Others (median score)	8-[C]onstruction Managers (median score)	7-[G]eneral Contractors (median score)	10-[L]awyers (median score)
7c (1)	Q15 & Q16	Ownership of Documents	The contractual role of the architect in the Ownership of the Documents provision diminished from 1951 to 1997.	The contractual role of the architect in the Ownership of the Documents provision diminished from 1951 to 1997. [(2) Primary Lead & (2) Primary Lead]	The contractual role of the architect in the Ownership of the Documents provision diminished from 1951 to 1997. [(2) Primary Lead & (3.5) Supervisory]	The contractual role of the architect in the Ownership of the Documents provision diminished from 1951 to 1997. [(2) Primary Lead & (2) Primary Lead]	The contractual role of the architect in the Ownership of the Documents provision diminished from 1951 to 1997. [(2) Primary Lead & (3) Supervisory]	The contractual role of the architect in the Ownership of the Documents provision diminished from 1951 to 1997. [(2) Primary Lead & (2) Primary Lead]
7c (2)	Q17	Ownership of Documents	The Ownership of Documents provision from 1951 to 1997 has a substantial effect on the construction process and contract administration.	The change in the Ownership of Documents provision from 1951 to 1997 has not had a substantial effect on the construction process and contract administration. [(3.5) Somewhat disagree]	The change in the Ownership of Documents provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration. [(1.5) Somewhat agree]	The change in the Ownership of Documents provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration. [(3) Neither agree nor disagree]	The change in the Ownership of Documents provision from 1951 to 1997 has not had a substantial effect on the construction process and contract administration. [(4) Somewhat disagree]	The change in the Ownership of Documents provision from 1951 to 1997 has not had a substantial effect on the construction process and contract administration. [(4) Somewhat disagree]
7c (2) ii	Q18	Ownership of Documents	The Ownership of Documents provision from 1951 to 1997 has a substantial effect on the function of the architect.	The Ownership of Documents provision from 1951 to 1997 has not had a substantial effect on the function of the architect. [(4) Somewhat disagree]	The Ownership of Documents provision from 1951 to 1997 has not had a substantial effect on the function of the architect. [(4) Somewhat disagree]	The Ownership of Documents provision from 1951 to 1997 has had a substantial effect on the function of the architect. [(3.5) Neither agree nor disagree]	The Ownership of Documents provision from 1951 to 1997 has not had a substantial effect on the function of the architect. [(4) Somewhat disagree]	The Ownership of Documents provision from 1951 to 1997 has not had a substantial effect on the function of the architect. [(4) Somewhat disagree]

Survey Question	Survey Question's Sequential Order	Contract Provision	Alternative Hypothesis	32-Whole Population [median score]	7-[A]rchitects/Engineers/Owners/Others (median score)	8-[C]onstruction Managers (median score)	7-[G]eneral Contractors (median score)	10-[L]awyers (median score)
7d (1)	Q19 & Q20	Final Payment	The contractual role of the architect in the Final Payment provision diminished from 1966 to 1997.	The contractual role of the architect in the Final Payment provision did not diminish from 1966 to 1997. [(2) Primary Lead & (2) Primary Lead]	The contractual role of the architect in the Final Payment provision did not diminish from 1966 to 1997. [(2) Primary Lead & (2) Primary Lead]	The contractual role of the architect in the Final Payment provision did not diminish from 1966 to 1997. [(3.5) Secondary support & (2) Primary Lead]	The contractual role of the architect in the Final Payment provision did not diminish from 1966 to 1997. [(2) Primary Lead & (2) Primary Lead]	The contractual role of the architect in the Final Payment provision did not diminish from 1966 to 1997. [(2) Primary Lead & (3) Supervisory]
7d (2)	Q21	Final Payment	The Final Payment provision from 1966 to 1997 has a substantial effect on the construction process and contract administration.	The change in the Final Payment provision from 1966 to 1997 has not had a substantial effect on the construction process and contract administration. [(4) Somewhat disagree]	The change in the Final Payment provision from 1966 to 1997 has had a substantial effect on the construction process and contract administration. [(3.5) Neither agree nor disagree]	The change in the Final Payment provision from 1966 to 1997 has not had a substantial effect on the construction process and contract administration. [(4) Somewhat disagree]	The change in the Final Payment provision from 1966 to 1997 has not had a substantial effect on the construction process and contract administration. [(4) Somewhat disagree]	The change in the Final Payment provision from 1966 to 1997 has not had a substantial effect on the construction process and contract administration. [(5) Strongly disagree]
7d (2) ii	Q22	Final Payment	The Final Payment provision from 1966 to 1997 has a substantial effect on the function of the architect.	The Final Payment provision from 1966 to 1997 has not had a substantial effect on the function of the architect. [(4) Somewhat disagree]	The Final Payment provision from 1966 to 1997 has had a substantial effect on the function of the architect. [(3) Neither agree nor disagree]	The Final Payment provision from 1966 to 1997 has not had a substantial effect on the function of the architect. [(4) Somewhat disagree]	The Final Payment provision from 1966 to 1997 has not had a substantial effect on the function of the architect. [(4) Somewhat disagree]	The Final Payment provision from 1966 to 1997 has not had a substantial effect on the function of the architect. [(5) Strongly disagree]

Survey Question	Survey Question's Sequential Order	Contract Provision	Alternative Hypothesis	32-Whole Population [median score]	7-[A]rchitects/Engineers/Owners/Others (median score)	8-[C]onstruction Managers (median score)	7-[G]eneral Contractors (median score)	10-[L]awyers (median score)
7e (1)	Q23 & Q24	Claims for Extra Cost	The contractual role of the architect in the Claims for Extra Cost provision diminished from 1951 to 1997.	The contractual role of the architect in the Claims for Extra Cost provision did not diminish from 1951 to 1997. [(2) Primary Lead & (2) Primary Lead]	The contractual role of the architect in the Claims for Extra Cost provision did not diminish from 1951 to 1997. [(2) Primary Lead & (3) Supervisory]	The contractual role of the architect in the Claims for Extra Cost provision did not diminish from 1951 to 1997. [(2) Primary Lead & (2) Primary Lead]	The contractual role of the architect in the Claims for Extra Cost provision did not diminish from 1951 to 1997. [(2) Primary Lead & (2) Primary Lead]	The contractual role of the architect in the Claims for Extra Cost provision did not diminish from 1951 to 1997. [(2) Primary Lead & (2) Primary Lead]
7e (2)	Q25	Claims for Extra Cost	The Claims for Extra Cost provision from 1951 to 1997 has a substantial effect on the construction process and contract administration.	The change in the Claims for Extra Cost provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration. [(2) Somewhat agree]	The change in the Claims for Extra Cost provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration. [(1) Strongly agree]	The change in the Claims for Extra Cost provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration. [(2) Somewhat agree]	The change in the Claims for Extra Cost provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration. [(2) Somewhat agree]	The change in the Claims for Extra Cost provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration. [(2) Somewhat agree]
7e (2) ii	Q26	Claims for Extra Cost	The Claims for Extra Cost provision from 1951 to 1997 has a substantial effect on the function of the architect.	The Claims for Extra Cost provision from 1951 to 1997 has a substantial effect on the function of the architect. [(2) Somewhat agree]	The Claims for Extra Cost provision from 1951 to 1997 has a substantial effect on the function of the architect. [(1.5) Somewhat agree]	The Claims for Extra Cost provision from 1951 to 1997 has a substantial effect on the function of the architect. [(2) Somewhat agree]	The Claims for Extra Cost provision from 1951 to 1997 has a substantial effect on the function of the architect. [(2) Somewhat agree]	The Claims for Extra Cost provision from 1951 to 1997 has a substantial effect on the function of the architect. [(2) Somewhat agree]

Survey Question	Survey Question's Sequential Order	Contract Provision	Alternative Hypothesis	32-Whole Population [median score]	7-[A]rchitects/Engineers/Owners/Others (median score)	8-[C]onstruction Managers (median score)	7-[G]eneral Contractors (median score)	10-[L]awyers (median score)
7f (1)	Q27 & Q28	Shop Drawings	The contractual role of the architect in the Shop Drawings provision diminished from 1961 to 1997.	The contractual role of the architect in the Shop Drawings provision diminished from 1961 to 1997. [(4) Secondary support & (5) Reviewer]	The contractual role of the architect in the Shop Drawings provision diminished from 1961 to 1997. [(4) Secondary support & (4.5) Reviewer]	The contractual role of the architect in the Shop Drawings provision diminished from 1961 to 1997. [(4.5) Secondary support & (5) Reviewer]	The contractual role of the architect in the Shop Drawings provision diminished from 1961 to 1997. [(3) Supervisory & (5) Reviewer]	The contractual role of the architect in the Shop Drawings provision diminished from 1961 to 1997. [(5) Reviewer & (5) Reviewer]
7f (2)	Q29	Shop Drawings	The Shop Drawings provision from 1961 to 1997 has a substantial effect on the construction process and contract administration.	The change in the Shop Drawings provision from 1961 to 1997 has had a substantial effect on the construction process and contract administration. [(2) Somewhat agree]	The change in the Shop Drawings provision from 1961 to 1997 has had a substantial effect on the construction process and contract administration. [(2) Somewhat agree]	The change in the Shop Drawings provision from 1961 to 1997 has had a substantial effect on the construction process and contract administration. [(2) Somewhat agree]	The change in the Shop Drawings provision from 1961 to 1997 has had a substantial effect on the construction process and contract administration. [(1) Strongly agree]	The change in the Shop Drawings provision from 1961 to 1997 has had a substantial effect on the construction process and contract administration. [(2) Somewhat agree]
7f (2) ii	Q30	Shop Drawings	The Shop Drawings provision from 1961 to 1997 has a substantial effect on the function of the Architect.	The Shop Drawings provision from 1961 to 1997 has a substantial effect on the function of the Architect. [(2) Somewhat agree]	The Shop Drawings provision from 1961 to 1997 has a substantial effect on the function of the Architect. [(2) Somewhat agree]	The Shop Drawings provision from 1961 to 1997 has a substantial effect on the function of the Architect. [(2) Somewhat agree]	The Shop Drawings provision from 1961 to 1997 has a substantial effect on the function of the Architect. [(1) Strongly agree]	The Shop Drawings provision from 1961 to 1997 has a substantial effect on the function of the Architect. [(2) Somewhat agree]

Survey Question	Survey Question's Sequential Order	Contract Provision	Alternative Hypothesis	32-Whole Population [median score]	7-[A]rchitects/Engineers/Owners/Others (median score)	8-[C]onstruction Managers (median score)	7-[G]eneral Contractors (median score)	10-[L]awyers (median score)
7g (1)	Q31 & Q32	Changes in the Work	The contractual role of the architect in the Changes in the Work provision diminished from 1951 to 1997.	The contractual role of the architect in the Changes in the Work provision did not diminish from 1951 to 1997. [(2.5) Supervisory & (4) Secondary support]	The contractual role of the architect in the Changes in the Work provision did not diminish from 1951 to 1997. [(3.5) Secondary support & (4.5) Secondary support]	The contractual role of the architect in the Changes in the Work provision did not diminish from 1951 to 1997. [(4) Secondary support & (4) Secondary support]	The contractual role of the architect in the Changes in the Work provision did not diminish from 1951 to 1997. [(2) Primary Lead & (2) Primary Lead]	The contractual role of the architect in the Changes in the Work provision did not diminish from 1951 to 1997. [(2) Primary Lead & (2) Primary Lead]
7g (2)	Q33	Changes in the Work	The Changes in the Work provision from 1951 to 1997 has a substantial effect on the construction process and contractual administration.	The change in the Changes in the Work provision from 1951 to 1997 has had a substantial effect on the construction process and contractual administration. [(2) Somewhat agree]	The change in the Changes in the Work provision from 1951 to 1997 has had a substantial effect on the construction process and contractual administration. [(2) Somewhat agree]	The change in the Changes in the Work provision from 1951 to 1997 has had a substantial effect on the construction process and contractual administration. [(1.5) Somewhat agree]	The change in the Changes in the Work provision from 1951 to 1997 has had a substantial effect on the construction process and contractual administration. [(2) Somewhat agree]	The change in the Changes in the Work provision from 1951 to 1997 has had a substantial effect on the construction process and contractual administration. [(2) Somewhat agree]
7g (2) ii	Q34	Changes in the Work	The Changes in the Work provision from 1951 to 1997 has a substantial effect on the function of the architect.	The Changes in the Work provision from 1951 to 1997 has a substantial effect on the function of the architect. [(2) Somewhat agree]	The Changes in the Work provision from 1951 to 1997 has a substantial effect on the function of the architect. [(2) Somewhat agree]	The Changes in the Work provision from 1951 to 1997 has a substantial effect on the function of the architect. [(2) Somewhat agree]	The Changes in the Work provision from 1951 to 1997 has a substantial effect on the function of the architect. [(2) Somewhat agree]	The Changes in the Work provision from 1951 to 1997 has a substantial effect on the function of the architect. [(2) Somewhat agree]

5.6.3 STEP 3 - FINDINGS OF PHASE II

The research question addressed in Phase II of the three-phase investigation for this dissertation is:

Have changes in the key provisions of general conditions materially affected the function of the design professional during construction and contract administration.

The objective of Phase II was:

To examine the effect change has had or not had on the function of the design professional's degree of participation required to properly and successfully perform the design professional's assumed duties and responsibilities during the construction phase and contract administration.

The hypotheses of Phase II are:

Change has occurred in key provisions relating to the construction phase and contract administration in the AIA A201 contract document from 1951 to 1997; and changes made to key provisions of AIA A201 have had a material effect on the function performed by the architect/design professional during the construction phase and contract administration.

There was a 43% response rate (detailed in Chapter 5.5.3) resulting from the three-part self-administered mail survey questionnaire, which was used to investigate Phase II of the dissertation, described in Chapter 5.5.1. Part I of the questionnaire established the specified target population of respondents who are active in various areas of the industry and experienced participants in the construction phase.

Of the thirty-two (32) returned and completed questionnaires,

- The primary occupations of the respondents were in the areas of general contractors, construction managers, and lawyers;
- The majority of the respondents primarily work in the private sector of the construction industry;
- The respondents' primary types of work engaged in the construction industry are in the areas of commercial, legal, governmental, transportation, and institutional work; and
- All of the respondents have more than 10 years of experience and approximately 84% of the respondents have over 20 years of experience.

Part II of the survey questionnaire determined that:

- The respondents were considered to have a familiarity with the intention and use of the AIA A201. (84% of the respondents are familiar with and/or have used the AIA A201 family of contract documents.)
- The majority of the respondents (63%) are using the AIA documents with minor/major modifications.

As the central part of the investigation, Part III of the survey questionnaire gained insight into the respondents' opinions regarding the effect that change in key provisions from 1951 to 1997 editions of AIA A201 have had on the function of the architect and its corresponding degree of participation of the architect in the contractual role required. Also, investigated in Part III of the survey was the respondents' opinions regarding the significance of the investigated provision to the construction phase and its importance to the function of the architect to perform during the contract administration during the construction phase.

Herewith are the final survey findings resulting from the statistical analyses:

- **Role of the Architect**

In the provision of 1951, the contractual role of the architect in the **Role of the Architect** provision was a primary lead role (active); then, in the provision of 1997, the contractual role was viewed more as a reviewer (passive). Thus, based on the characterizations of the roles and functions of the architect outlined in Figure 8, the role of the architect in the AIA A201 Role of the Architect provision diminished from 1951 to 1997.

From 1951 to 1997, change in the **Role of the Architect** provision has had a material effect on the construction phase, contract administration, and on the function of the architect.

- **Dispute Resolution**

In the provision of 1951, the contractual role of the architect in the **Dispute Resolution** provision was a primary lead role (active); then, in the provision of 1997, the contractual role was viewed more as a supervisory role (neutral/mid). Thus, the role of the architect in the AIA A201 Dispute Resolution provision diminished from 1951 to 1997.

From 1951 to 1997, change in the **Dispute Resolution** provision has had a material effect on the construction phase, contract administration, and on the function of the architect.

- **Ownership of the Documents**

In the provision of 1951, the contractual role of the architect in the **Ownership of the Documents** provision was a primary lead role (active); then, in the provision of 1997, the contractual role was also viewed as a primary lead role (active). (At the same time, the statistical analysis supports the preliminary findings shown in Figure 24 and Figure 25: The change in the provision from 1951 to 1997 has decreased in participation from the architect's function during construction. In 1951, the architect's degree of participation was perceived only as an active role. From 1951 to 1997, the change in the provision has led to the active role of the architect slightly decreasing and an increasingly passive degree of participation, which was statistically significant.) Thus, the role of the architect in the AIA A201 Ownership of the Documents provision diminished from 1951 to 1997.

From 1951 to 1997, change in the **Ownership of Documents** provision has **not** had a material effect on the construction phase and contract administration. And, the **Ownership of Documents** provision from 1951 to 1997 has **not** had a material effect on the function of the architect.

- **Final Payment**

In the provision of 1966, the contractual role of the architect in the **Final Payment** provision was a quasi-judicial role (active); then, in the provision of 1997, the contractual role was also viewed to a quasi-judicial role (active). (At the same time, the statistical analysis does not support the preliminary findings shown in

Figure 27 and Figure 28: The change in the provision from 1966 to 1997 has created a “slight” decrease in participation from the architect’s function during the construction phase. In the 1966 provision, the architect’s degree of active participation was slightly greater than was viewed in the 1997 provision. After review and interpretation of the complete statistical results, the slight difference is not statistically significant.) Thus, the role of the architect in the AIA A201 Final Payment provision did **not** diminish from 1966 to 1997.

From 1966 to 1997, change in the **Final Payment** provision has **not** had a material effect on the construction phase and contract administration; and, the **Final Payment** provision from 1966 to 1997 has **not** had a material effect on the function of the architect.

- **Claims for Extra Cost**

In the provision of 1951, the contractual role of the architect in the **Claims for Extra Cost** provision was a primary lead role (active); then, in the provision of 1997, the contractual role was also viewed as a primary lead role (active). (At the same time, the statistical analysis does not support the preliminary findings shown in Figure 30 and Figure 31: The change in the provision from 1951 to 1997 has created a “slight” decrease in participation from the architect’s function during the construction phase. In the 1951 provision, the architect’s degree of active participation was slightly greater than was viewed in the 1997 provision. After review and interpretation of the complete statistical results, the slight difference is not statistically significant.) Thus, the role of the architect in the AIA A201 Claims for Extra Cost provision did **not** diminish from 1966 to 1997.

However, from 1951 to 1997, the Claims for Extra Cost provision has had a material effect on the construction phase, contract administration, and on the function of the architect.

- **Shop Drawings**

In the provision of 1961, the contractual role of the architect in the **Shop Drawings** provision was a secondary support role (neutral/mid); then, in the provision of 1997, the contractual role was viewed more as a reviewer role (passive). Thus, the role of the architect in the AIA A201 Shop Drawings provision diminished from 1961 to 1997.

From 1961 to 1997, change in the **Shop Drawings** provision has had a material effect on the construction phase, contract administration, and on the function of the architect.

- **Changes in the Work**

In the provision of 1951, the contractual role of the architect in the **Changes in the Work** provision was a supervisory role (neutral/mid); then, in the provision of 1997, the contractual role was viewed to be a secondary support role (neutral/mid). (At the same time, the statistical analysis does not support the

preliminary findings shown in Figure 36 and Figure 37: The change in the provision from 1951 to 1997 has created a “slight” decrease in participation from the architect’s function during the construction phase. In the 1951 provision, the architect’s degree of active participation was slightly greater than was viewed in the 1997 provision. After review and interpretation of the complete statistical results, the slight difference is not statistically significant.) Thus, the role of the architect in the AIA A201 Claims for Extra Cost provision did **not** diminish from 1966 to 1997.

However, from 1951 to 1997, change in the **Changes in the Work** provision has had a material effect on the construction phase, contract administration, and on the function of the architect.

Despite the respondents' varying opinions regarding the significance of the seven (7) investigated provisions and their respective effect on the contractual role of the architect's functions during construction and contract administration, changes have had a material effect on the function of the design professional's degree of participation to properly and successfully perform during the construction phase and contract administration. The research has shown that changes made to key provisions of AIA A201 from 1951 to 1997 (Role of the Architect, Dispute Resolution, Ownership of the Documents, and Shop Drawings) have diminished the role of the architect. Also, changes to key provisions (Role of the Architect, Dispute Resolution, Claims for Extra Cost, Shop Drawings, and Changes in the Work) have had a material effect on the construction phase, contract administration, and the function performed by the architect/design professional during construction. As stated in Chapter 1.2, the purpose of this study was to advance the understanding of change in the AIA A201 and the impact change has had on the value-added benefit of the design professional. Therefore, in light of the findings resulting from the examination of the primary criterion of the material effect of change on key provisions of AIA A201 (See Figure 41), the inquiry of Phase III focused on the following five (5) key contract provisions:

1. Role of the Architect
2. Dispute Resolution
3. Claims for Extra Cost
4. Shop Drawings
5. Changes in the Work

PHASE I	PHASE II		PHASE III
AIA A201 Contract Provision	Diminished over time	Material effect on the function of the architect	<i>AIA A201 Contract Provision further investigated in Chapter 6</i>
Role of the Architect	✓	✓	Role of the Architect
Dispute Resolution	✓	✓	Dispute Resolution
Ownership of Documents	✓	✗	Drop
Final Payment	✗	✗	Drop
Claims for Extra Cost	✗	✓	Claims for Extra Cost
Shop Drawings	✓	✓	Shop Drawings
Changes in the Work	✗	✓	Changes in the Work

Figure 41: Progression of the Investigation of the Key Contract Provisions focused on in this Research Study from Phase to Phase

6 PHASE III: A MEASURE OF THE IMPACT ON THE OWNER'S PERCEPTION OF THE VALUE-ADDED BENEFIT BY THE ARCHITECT/DESIGN PROFESSIONAL AS A RESULT OF CHANGES IN THE AIA A201

This chapter reports on the implementation of Phase III of the research methodology. It presents the survey instrument used in Phase III, reports on the data obtained, and provides an analysis and interpretation of the results of Phase III.

6.1 INTRODUCTION

In the construction industry, the trichotomy is commonly accepted to be the contractual relationships of the owner, contractor, and design professional, i.e. architect or engineer. Typically, a project is initiated by an owner who provides the site, specifies what is to be built, and pays for the completed project. There are now owner-organizations, recently formed, that hold the belief that the changes in AIA A201 have diminished the contractual relationship between the owner and the design professional/architect (Korman 2000). Phase I and Phase II of this research study investigated the changes, which have occurred in the evolution of general conditions of AIA A201; and, how the changes affect the function of the design professional. Phase III measured the current owner-perceived value-added benefit of the design professional during the construction phase.

The research question addressed in Phase III, the final phase of the three-phase investigation for this dissertation is:

Have changes in the function of the design professional, as a result of changes in AIA A201, impacted owners' perception of the value-added benefit by the design professional during the construction phase and the contract administration.

A survey questionnaire was used to ascertain the impact that changes to the function that the design professional performs has had or not had on owners' perception of the value-added benefit by the design professional during the construction phase and contract administration. As discussed in Chapter 3.4.4, the survey instrument was a self-administered mail survey.

For Phase III, the survey research involved a sample of only industry owners and owners' representatives to participate. The "qualified respondents" were of a sample population who are classified as active, experienced owner-participants in the construction phase. The source of the sample population was obtained from various organizations, in particular, the American Institute of Architects (AIA), the Associated Owners & Developers (AOD), the Construction Owners Association of America (COAA), and the Construction Users Roundtable (CURT). The survey was disseminated to a convenient sample of the executive directors, board of directors, officers, and associate members of the organizations. In addition, the sampling population included the distribution list of the 5th Annual Survey of Owners survey conducted by the FMI Management Consulting and Investment Banking firm in partnership with the Construction Management Association of America (CMAA), which also targeted only owners and owners' representatives. In the end, the collective list created an actual sample of 200 industry owners and owners' representatives.

The primary hypothesis tested in Phase III is whether or not changes in the function performed by the architect/design professional during the construction phase and contract administration are perceived by owners as having significantly affected the value-added benefit by the architect/design professional during the construction phase and contract administration. This chapter presents Phase III in total: question, hypothesis, objective, methodology - survey instrument, analysis of data, and interpretation of the results.

6.2 QUESTION OF PHASE III

Q3) Have changes in the function of the design professional, as a result of changes in AIA A201, impacted owners' perception of the value-added benefit by the design professional during the construction phase and the contract administration?

6.3 HYPOTHESIS OF PHASE III

H3) Changes in the function performed by the architect/design professional during construction and contract administration are perceived by owners as having significantly affected the value-added benefit by the architect/design professional during the construction phase and contract administration.

6.4 OBJECTIVE OF PHASE III

Obj 3) To ascertain the impact that changes to the functions performed by the design professional have had or not had on owners' perception of the value-added benefit by the design professional during the construction phase and contract administration.

6.5 METHODOLOGY OF PHASE III: SURVEY QUESTIONNAIRE

6.5.1 INSTRUMENT

The methodology of Phase III sets out to support the hypothesis, where the independent variable is the function of the architect and the dependent variable is the owner's perception of the value-added benefit of the architect.

To meet the objective set forth in Chapter 6.4, there are a combined total of thirty-eight (38) closed-ended and multiple-choice questions, which were used to ascertain information and insights from the experience and knowledgeable owner-population of the industry. The complete original questionnaire is shown in Appendix D2.

The questionnaire is divided into three (3) parts:

1. **Part I: Your Background** – designed to gauge the respondents' industry role as an owner or owner's representative, years of industry experience, and familiarity and use of the AIA A201 family of contract documents (Questions 1-5 are shown below and descriptive results are presented in Chapter 6.5.4).

PART I: YOUR BACKGROUND

- 1) In connection with constructed projects, do you act or have acted primarily as an "Owner" or as an "Owner's Representative"?

Owner

Owner's Representative

Neither

(Thank you for your time. Please return your survey in the envelope provided.)

- 2) As an Owner or Owner's Representative, what percentage of your time is spent acting in the designated role?
- | | |
|-----------------------------------|------------------------------------|
| <input type="checkbox"/> 0 – 10% | <input type="checkbox"/> 51 – 75% |
| <input type="checkbox"/> 11 – 25% | <input type="checkbox"/> 76 – 90% |
| <input type="checkbox"/> 26 -50% | <input type="checkbox"/> 91 – 100% |

3) To which of the following professional organizations do you belong? *(Check all that apply)*

- Construction Owners Association of America (COAA)
- Associated Owners & Developers (AOD)
- Construction Users Roundtable (CURT)
- Associated Builders and Contractors (ABC)
- The Associated General Contractors of America (AGC)
- The American Institute of Architects (AIA)
- Construction Management Association of America (CMAA)
- National Society of Professional Engineers (NSPE)
- Other: _____

4) How many years have you worked in the construction industry?

- Less than 10 years
- 11 – 15 years
- 16 – 20 years
- 21 – 25 years
- 26 – 30 years
- 31 – 35 years
- 36 years or more

5) Which of the following statements best reflects your level of familiarity with the AIA A201 "family" of contract documents?

- I am not familiar with them and do not use them.
- I am familiar with them, but do not use them.
- I am familiar with them, but use them only occasionally.
- I am familiar with them, and use them quite frequently.

2. **Part II: Design Professional during Construction** – designed to gauge important services of an architect and the use by owners/owners' representatives of an architect for construction oversight or construction management services during the construction phase of a project (Questions 6-8 are shown below and descriptive results are presented in Chapter 6.5.4).

PART II: DESIGN PROFESSIONAL DURING CONSTRUCTION

6) As an Owner or Owner's Representative, over the last 10 years, have you utilized construction oversight or construction management services of an Architect during the construction phase of your projects? *(If your response is "No", please go to Question No. 9)*

- Yes
- No

7) How often – expressed as a percentage of the projects you have undertaken – do you utilize construction oversight or construction management services of an Architect during the construction phase of your projects?

(If your response is "0% (never)", please go to Question No. 9)

- 0% (never)
- 25%
- 50%
- 75%
- 100% (all of the time)

8) As an Owner or Owner's Representative, please rate the importance of the Architect's services during the construction phase of a project.

(Please use the following scale: 1 = not at all important; 5 = extremely important)

_____ Timely review and response to inquires concerning Contract Documents

_____ Interpret and decide matters concerning the performance of the Owner and Contractor

_____ Render decisions on claims, disputes, or other matters in question between the Owner and Contractor

_____ Visit the project site at intervals appropriate to the stage of work in effort to guard the Owner against defects and deficiencies in the contracted work

_____ Reject work that does not conform to the Contract Documents

_____ Conduct inspections to determine the dates of Substantial Completion and Final Completion, and issue a final Certificate of Payment

_____ Review, approve, or take appropriate action upon Contractor's submittals, i.e. shop drawings

_____ Authorize minor changes in the work, not involving adjustment in the contract time or contract sum

3. **Part III: Impact of Change on the Value-added Benefit of the Design Professional** – designed to gauge the opinions of owners/owners' representatives regarding the effect that the change of key provisions in AIA A201 from 1951 to 1997 have had on the function of the architect and the value of the architect's services during the construction phase and contract administration (An illustration of Questions 9-13 is presented below and the results of the statistical analyses are presented in Chapter 6.6).

Part III of the survey is the core of the investigation of Phase III of this research and the central part of the questionnaire. There are five (5) areas of inquiry (e.g., Questions 9-13) with corresponding three (3) questions (e.g., Questions 9a-9c). Each inquiry of Part III consists of three questions regarding the five (5) key provisions determined directly from the results of Phase II of this dissertation, reported in Chapter 5.6.3. The five areas of inquiry are the contract provisions:

1. Role of the Architect (Question 9)
2. Dispute Resolution (Question 10)
3. Claims for Extra Cost (Question 11)
4. Shop Drawings (Question 12)
5. Changes in the Work (Question 13)

An example of Part III Questions 9-13 is provided below.

10) DISPUTE RESOLUTION (Paragraph 4.4 of the AIA A201-1997)

[Comment: For the purposes of this Question 10, please limit your response to your perception of the Architect's role as the initial arbitrator of disputes between the Owner and Contractor. This question is not intended to measure your opinion concerning the AIA's use of mediation and/or arbitration to address matters that remain unresolved between the Owner and Contractor after the Architect has fulfilled its responsibilities as the initial arbitrator of disputes between the Owner and Contractor.]

(a) From 1951 to 1997, there have been changes in the provisions of AIA A201 pertaining to **Dispute Resolution** in contract administration during construction. Which of the following statements most accurately reflects your opinion regarding these changes?

(Check only one box)

- The changes to the Dispute Resolution provisions have had no effect on the role of the Architect on a project during the construction phase.
- The changes to the Dispute Resolution provisions have resulted in the Architect assuming more responsibility during the construction phase.
- The changes to the Dispute Resolution provisions have resulted in the Architect assuming less responsibility during the construction phase.

(b) To what extent do you agree with the following statement: "The changes to the AIA A201 provision concerning the **Dispute Resolution** have increased the value of the Architect's performance of contract administration services during construction":

- Strongly agree Agree Neutral Disagree Strongly disagree

(c) As an Owner or Owner's representative, with regard to **Dispute Resolution**, do you find that in recent years the value of the Architect's contract administration services during construction has:

- Greatly increased Increased Not changed Decreased Greatly decreased

6.5.2 IMPLEMENTATION

For the Phase III survey questionnaire, this dissertation implemented the detailed procedures, known as "The Tailored Design Method" outlined in Chapter 5.5.2 for Phase II, to contact and engage the survey research participants. Appendix D1 provides the correspondence letters used to implement the Tailored Design Method. When implemented as outlined, the general methods utilized in Phase III have also proven to achieve good results.

Chapter 6.5 has briefly introduced the research methodology for Phase III: the three (3)-part survey instrument and the implementation procedures. As noted in Chapter 3.4.4.1, for Phase III, the survey research involved a sample of only industry owners and owners' representatives to participate. The "qualified respondents" were of a target population who are classified as active, experienced owner-participants in the construction phase. Chapter 6.6 reviews the make-up and general perceptions of the qualified respondents.

6.6 REVIEW OF QUALIFIED RESPONDENTS

The survey research involved a sample of only industry owners and owners' representatives to participate. The "qualified respondents" were of a target population who are classified as active, experienced owner-participants in the construction phase. The source of the sample was obtained from various organizations, in particular, the American Institute of Architects (AIA), the Associated Owners & Developers (AOD), the Construction Owners Association of America (COAA), and the Construction Users Roundtable (CURT). The survey was disseminated to the executive directors, board of directors, officers, and associate members of the organizations. In addition, the sampling population included the distribution list of the 5th Annual Survey of Owners survey conducted by the FMI Management Consulting and Investment Banking firm in partnership with the Construction Management Association of America (CMAA), which also targeted only owners and owners' representatives.

6.6.1 TALLY OF RESPONSES

To recap, the objective of Phase III is to ascertain the impact that changes to the functions performed by the design professional have had or not had on owners' perception of the value-added benefit by the design professional during the construction phase and contract administration. To meet the objectives, there are a combined total of thirty-eight (38) closed-ended and multiple-choice questions, which were used to ascertain information and insights from the knowledgeable and experienced owners and owners' representatives, qualified respondents.

Two hundred (200) surveys were mailed by the procedures of the Tailored Design Method to a target population of industry professionals for participation.

Location rate = 94%: Thirteen (13) were delivered to wrong addresses, leaving one hundred, eighty-seven (187) potential respondents.

Return rate = 37%: Seventy (70) surveys were returned.

Completion rate = 69%: Twenty-two (22) were non-responsive (returned incomplete or improperly completed surveys), leaving a total of forty-eight (48) returned completed surveys.

Total response rate = 24%: Neuman states that a total response rate of 10 to 50 percent is common for a mail survey, which was satisfied here.

Appendix D2 provides the original survey questionnaire with the score of the responses in parentheses. Appendix D3 provides the survey questions with their corresponding scale of responses applied for analysis. Note, the questions are identified in numerical order to make for thirty-eight (38) sequential questions; and, Appendix D4 provides the tally of the 38 questions by the 48 qualified respondents.

"Part I: Your Background" (consisting of Question 1 to Question 5) was designed to gauge the respondents' industry role as an owner or owner's representative, years of industry experience, and familiarity and use of the AIA A201 family of contract documents. The results are as follows:

Question 1: As discussed in Chapter 3.4.4.1, the target sampling population was owners and owners' representatives only. In connection with constructed projects, the respondents' who act or have acted primarily in their role in the industry as an owner or as an owner's representative are "qualified respondents" for participation

in the remainder of this study. Figure 42 shows the percentage of the participants that were qualified respondents, whose opinions were investigated further.

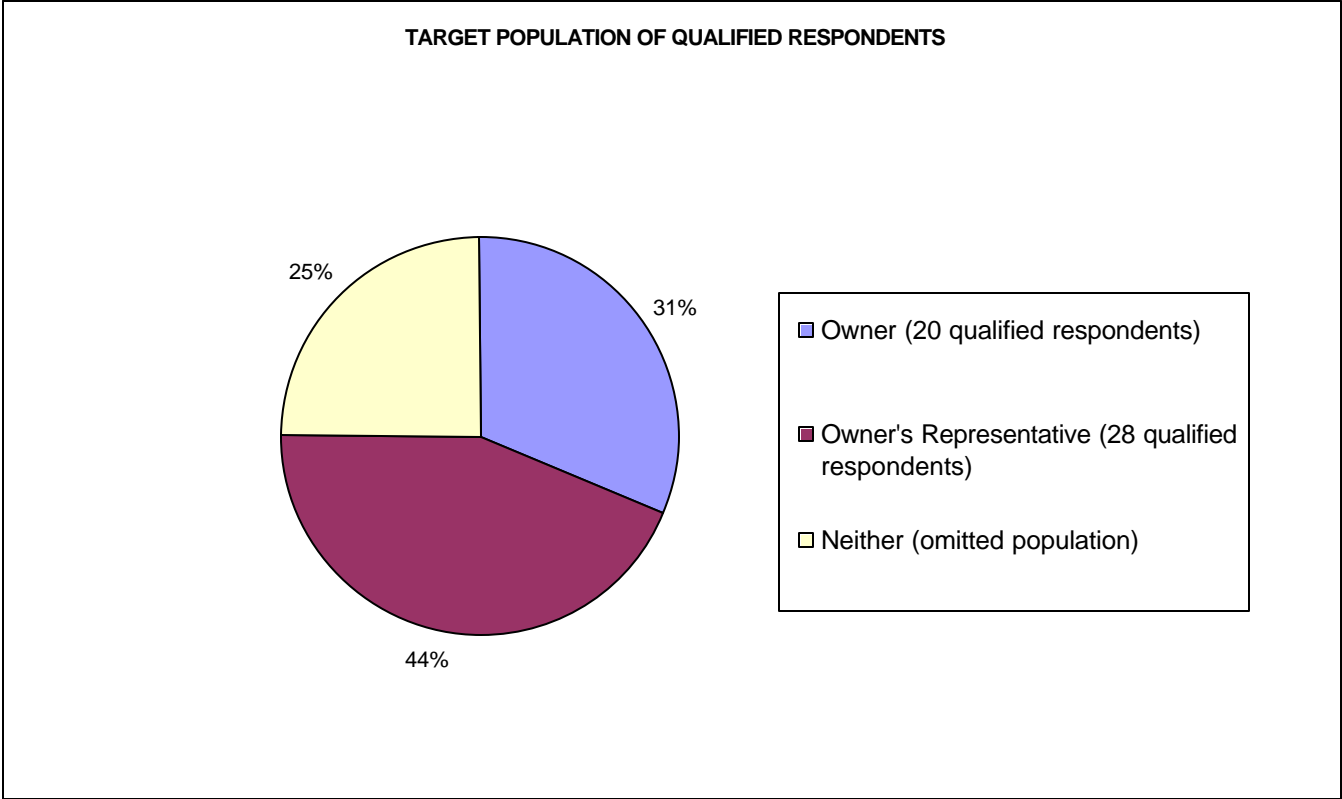


Figure 42: Target Population of Owner and Owners' Representatives

6.6.2 DESCRIPTION OF THE QUALIFIED RESPONDENTS

Question 2: The majority of the qualified respondents spent more than 50% of their time acting as an owner or owner's representative, as shown below in Figure 43.

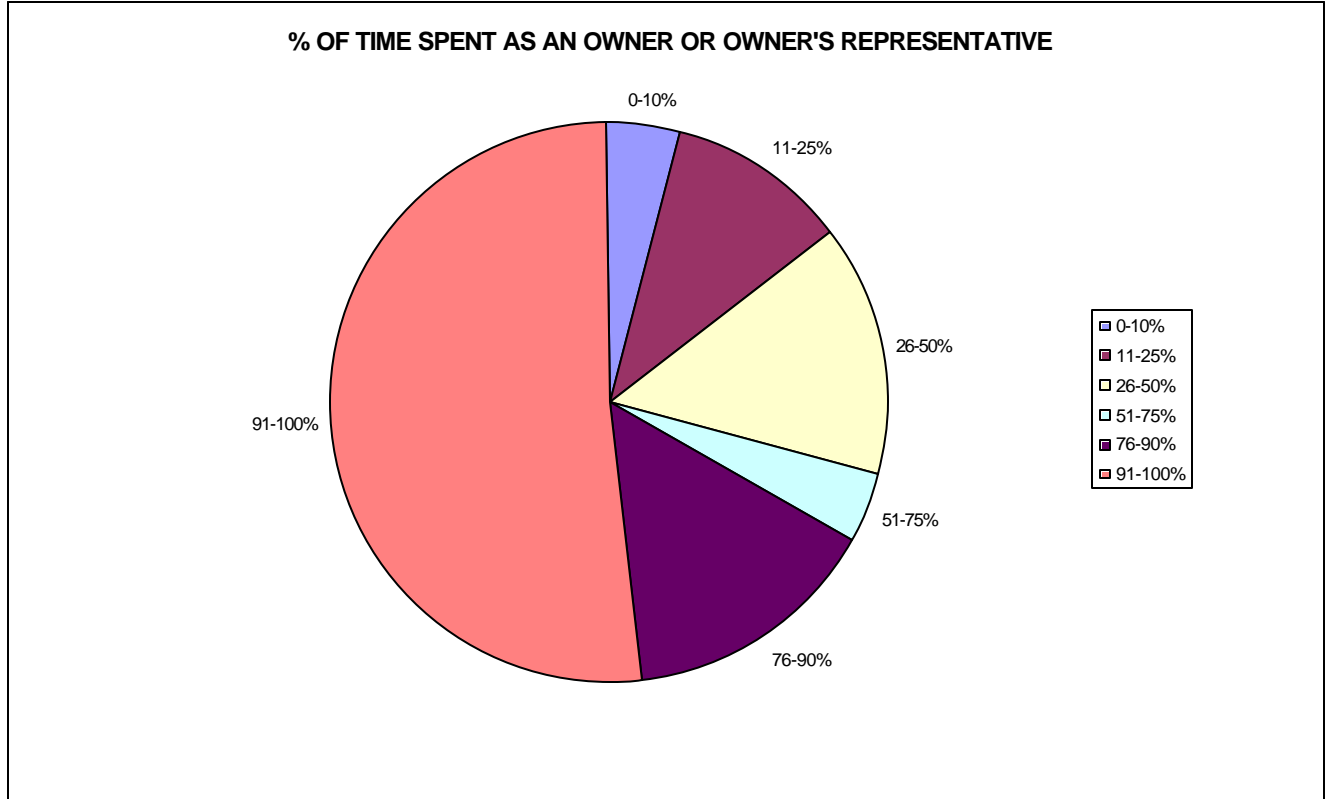


Figure 43: % of Time Spent as an Owner or Owners' Representatives

Question 3: The qualified respondents represent a variety of stakeholders and constituencies in the construction industry. As shown below in Figure 44, the respondents are affiliated with a number of industry organizations, such as the:

- Construction Owners Association of America (COAA)
- Associated Owners and Developers (AOD)
- Construction Users Roundtable (CURT)
- Associated Builders and Contractors (ABC)
- Associated General Contractors of America (AGC)
- American Institute of Architects (AIA)
- Construction Management Association of America (CMAA)
- National Society of Professional Engineers (NSPE)

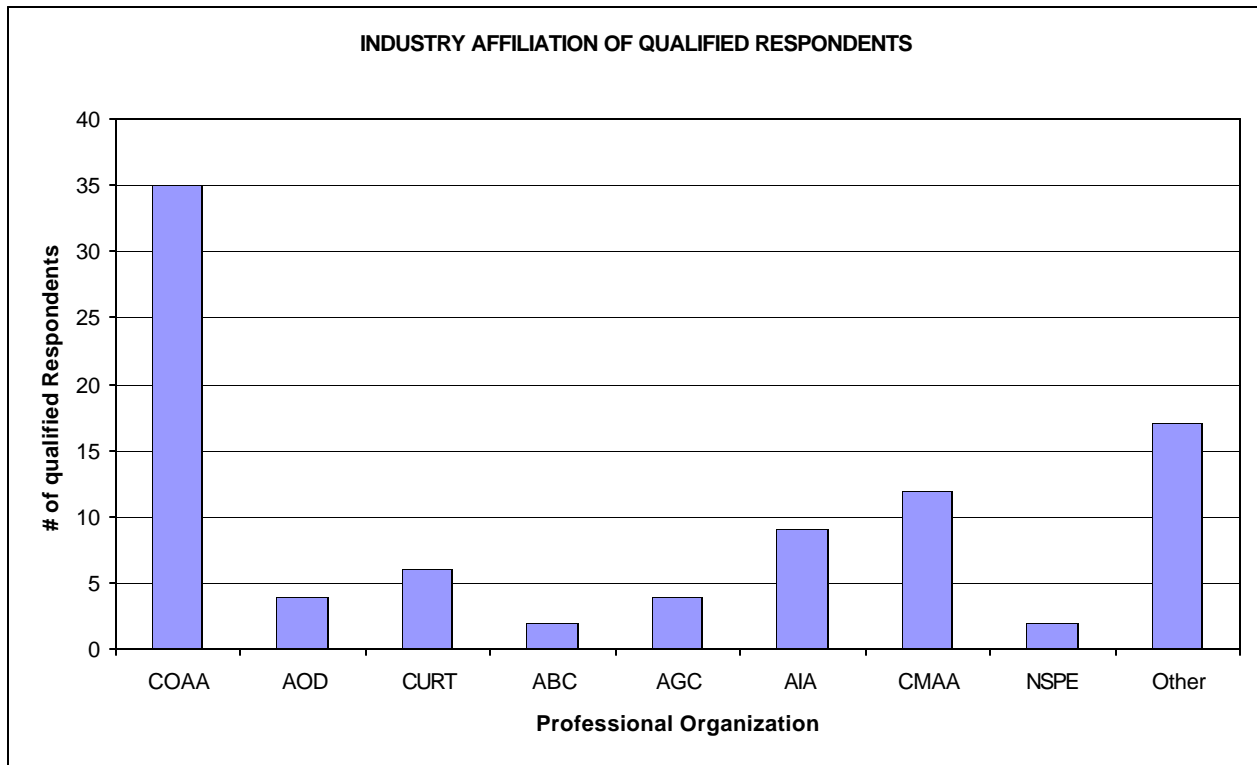


Figure 44: Owners/Owners' Representatives' Industry Affiliations with Professional Organizations

Question 4: Most of the respondents have more than 10 years of experience working in the construction industry. The majority of the respondents have over 20 years of experience. Below, Figure 45 exhibits a depiction of the survey results of the years of experience of the respondents in the construction industry.

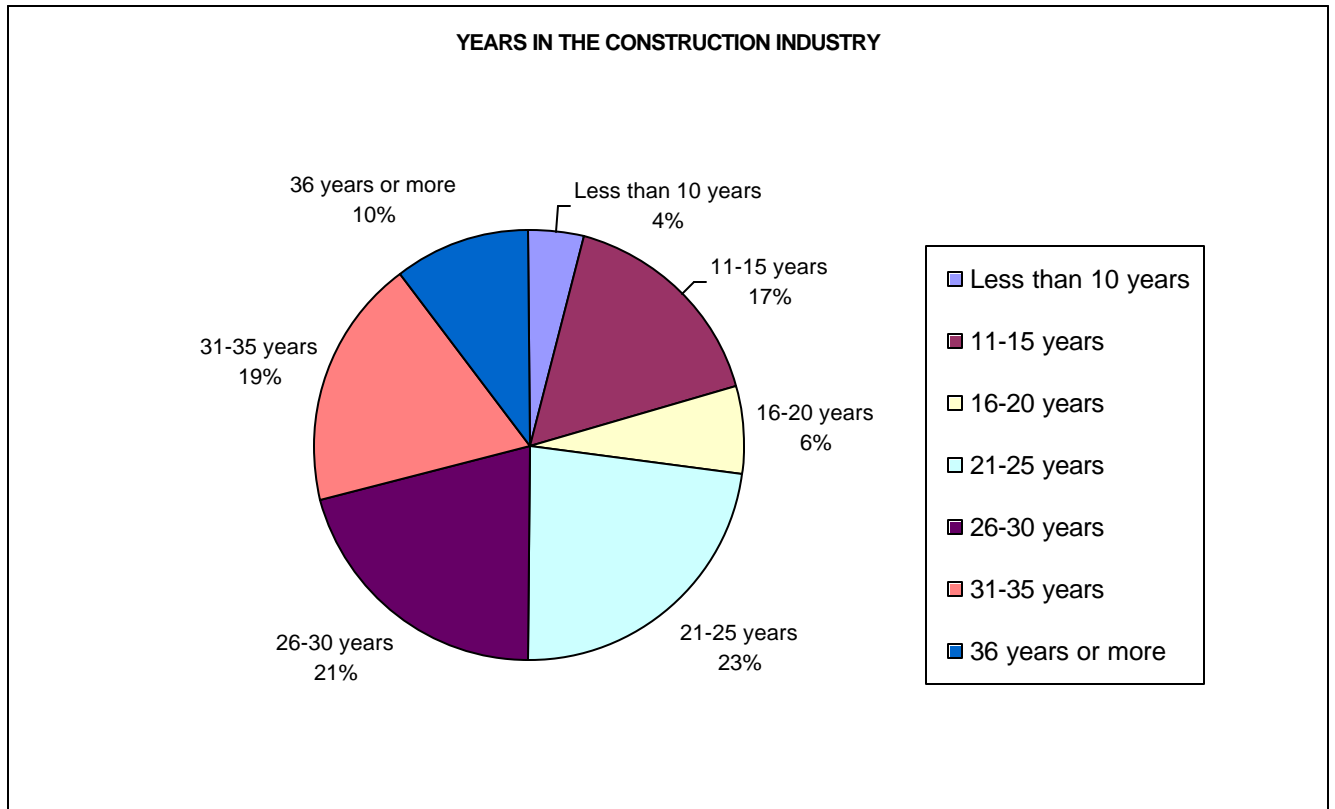


Figure 45: Years of Experience in the Construction Industry of the Qualified Respondents

Question 5: Below, Figure 46 presents the survey results of the qualified respondents who have some familiarity with the AIA A201 family of documents. 61% are familiar with and use the family of documents from the AIA contracting system.

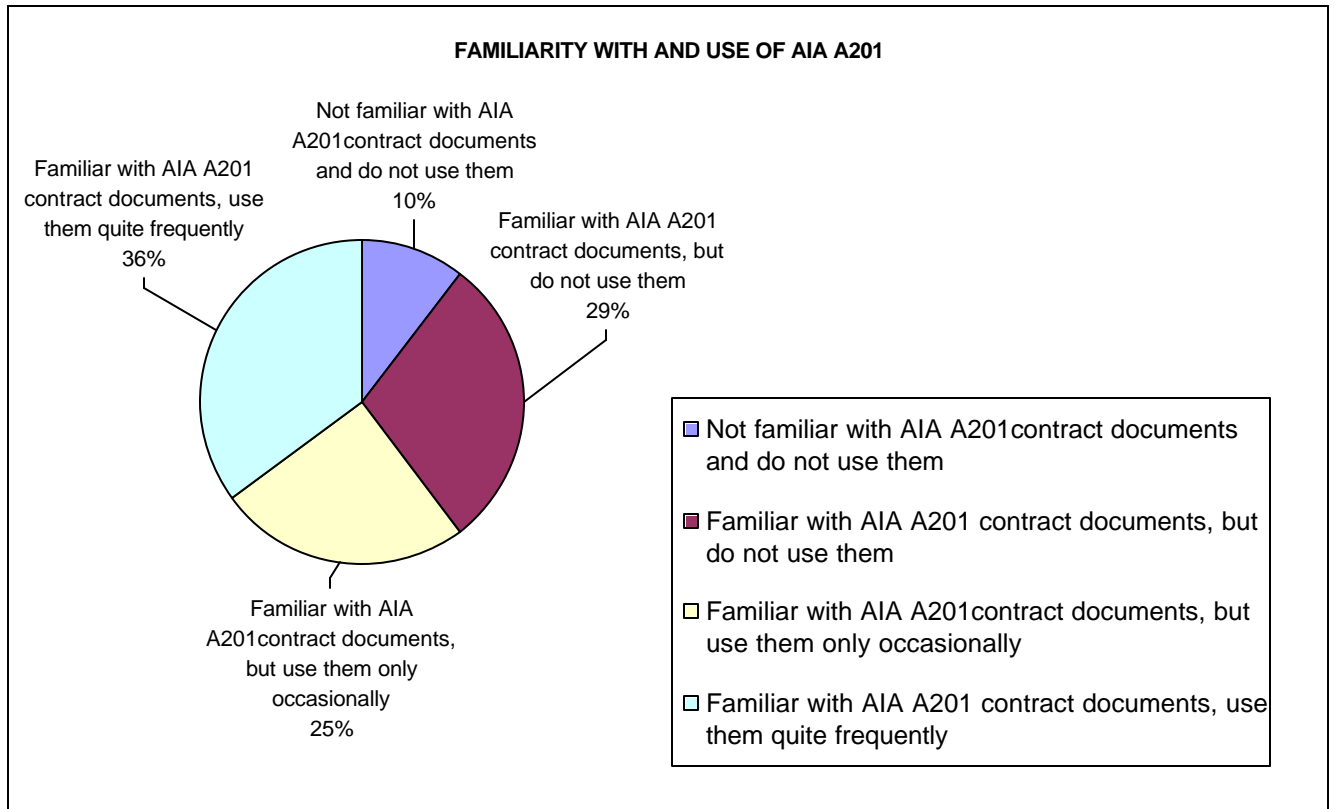


Figure 46: Qualified Respondents' Familiarity and Use with AIA Contract Documents

“Part II: Design Professional during Construction” (consisting of Question 6 to Question 8) was designed to gauge the qualified respondents’, as an owner or owner’s representative, utilization of construction oversight or construction management services of an Architect during the construction phase of a project. In addition, the importance of certain functions performed by the Architects is gauged. The results are as follows:

Question 6: The majority of the qualified respondents have utilized construction oversight or construction management services of an Architect during the construction phase of projects over the last 10 years, as shown below in Figure 47.

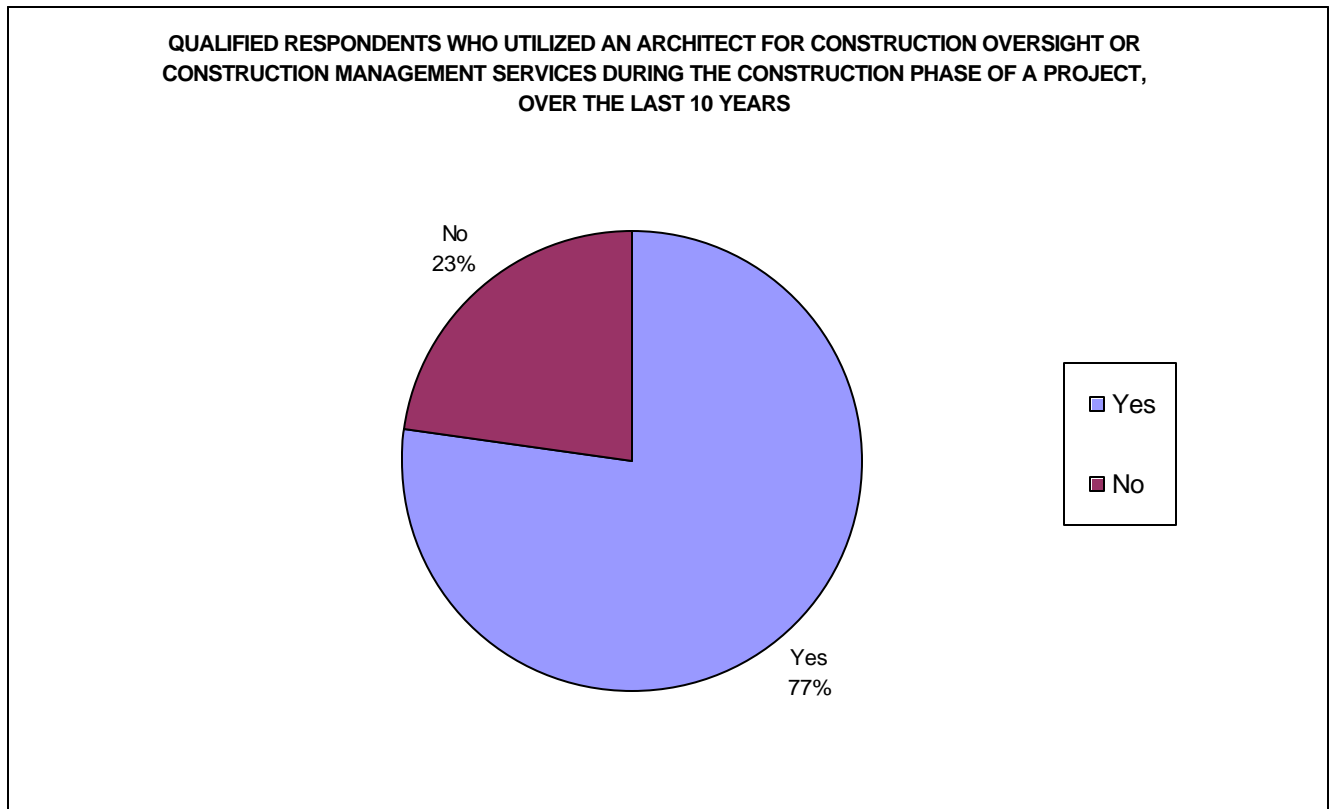


Figure 47: Utilization of Architect’s Services during the Construction Phase by the Qualified Respondents

Question 7: The majority of the qualified respondents have utilized construction oversight or construction management services of an Architect during the construction phase of projects more than 50% of the time, as shown below in Figure 48.

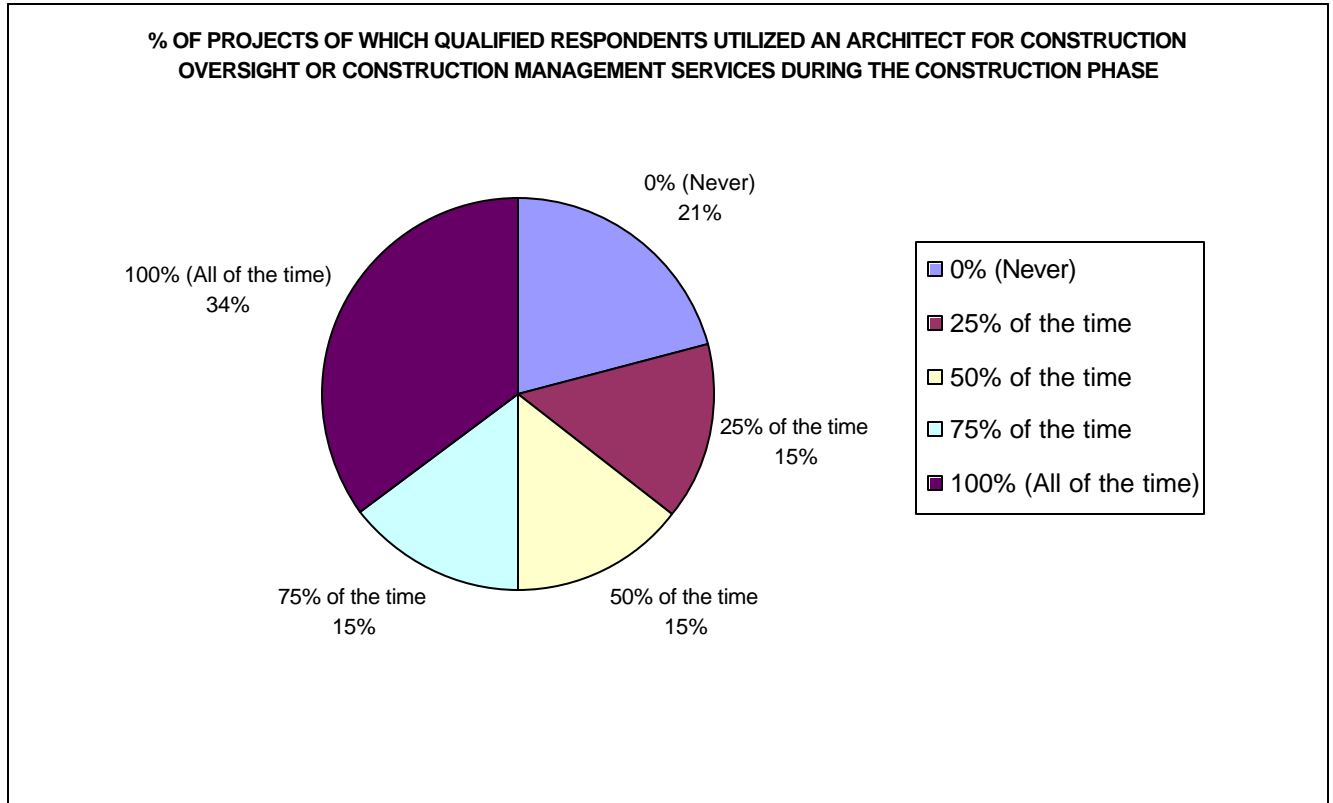


Figure 48: Percentage of Projects of which the Qualified Respondents Use Architects during the Construction Phase of a Project

6.6.3 PERCEPTIONS OF QUALIFIED RESPONDENTS ON THE ARCHITECT'S SERVICES DURING THE CONSTRUCTION PHASE OF A PROJECT

Question 8: The importance of the Architect's services during the construction phase of a project was rated by the qualified respondents using the following scale: 1 = not at all important; 5 = extremely important. Eight (8) common functions typically performed by an architect when utilized for construction oversight or construction management services during the construction phase of a project were examined. The results are shown in the below eight (8) bar graphs:

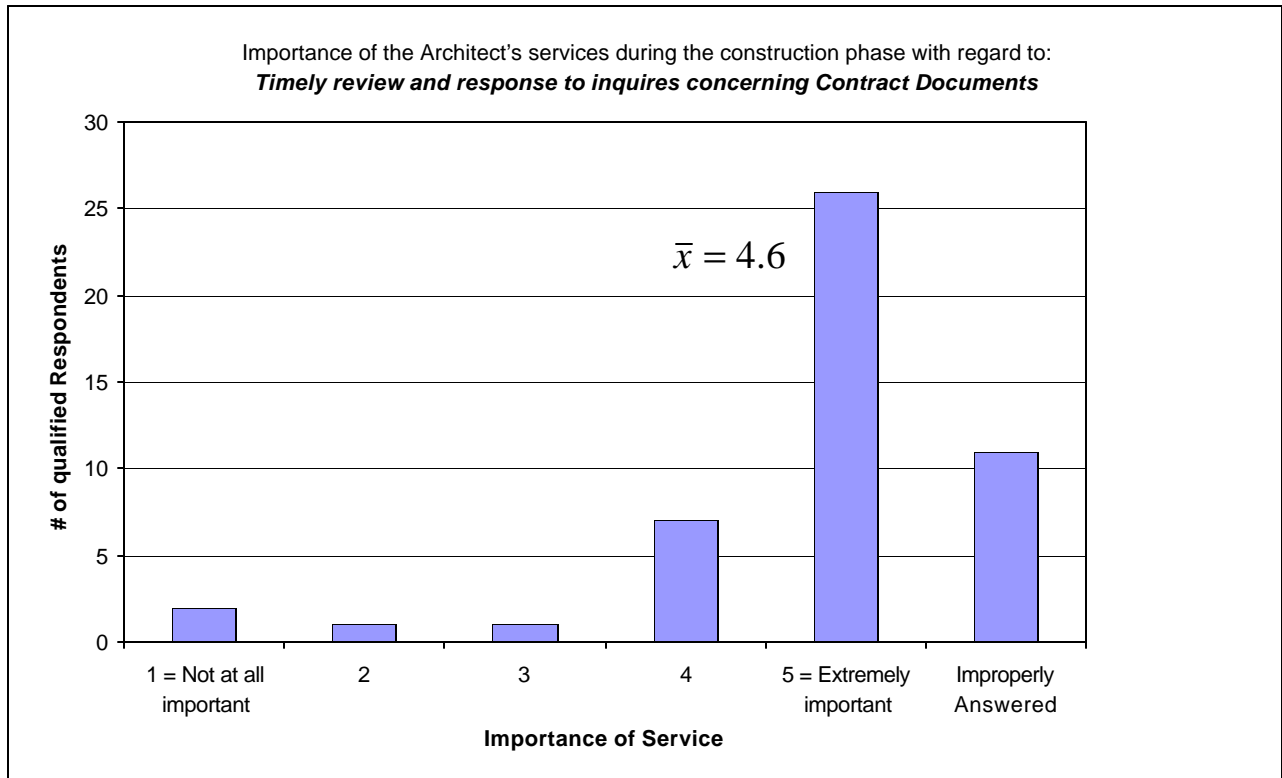


Figure 49: Importance of the Architect's Services in regards to 'timely review and response to inquiries'

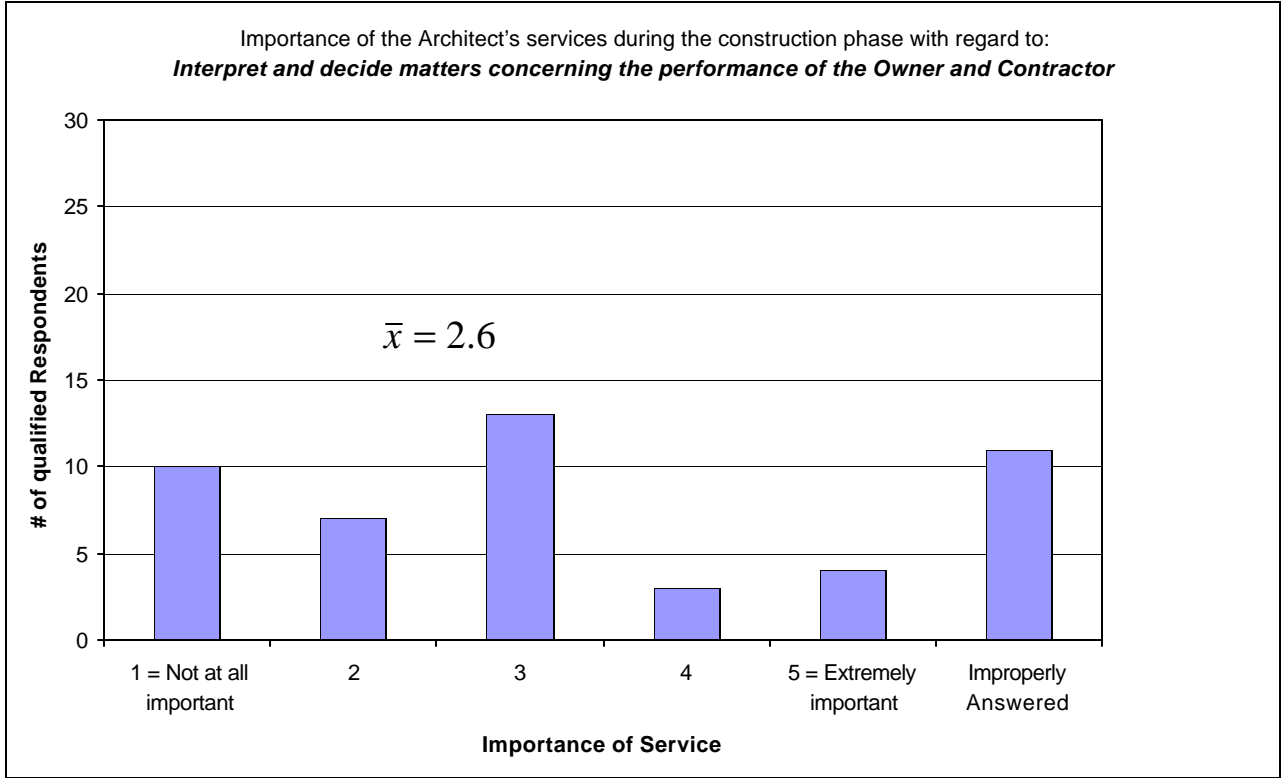


Figure 50: Importance of the Architect's Services in regards to 'interpret and decide matters concerning the performance of the owner and contractor'

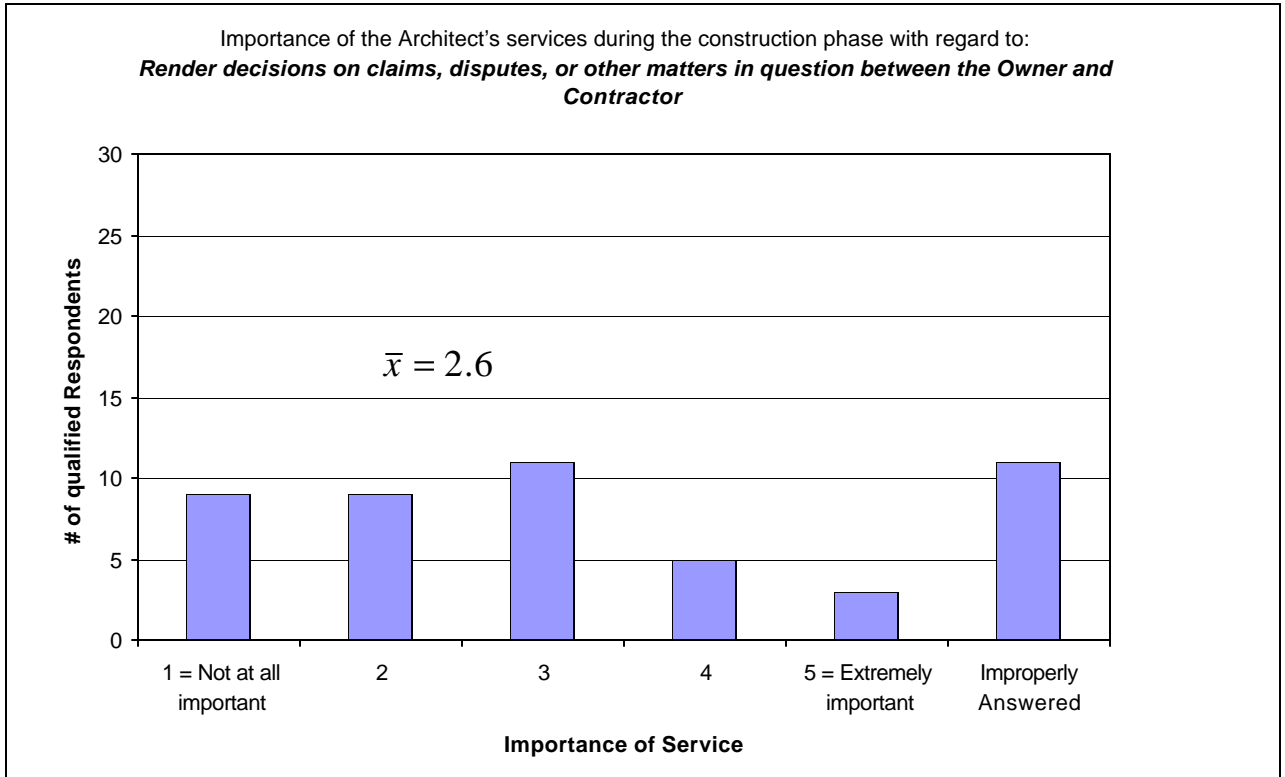


Figure 51: Importance of the Architect's Services in regards to 'render decision on claims, or other matters in question between the owner and contractor'

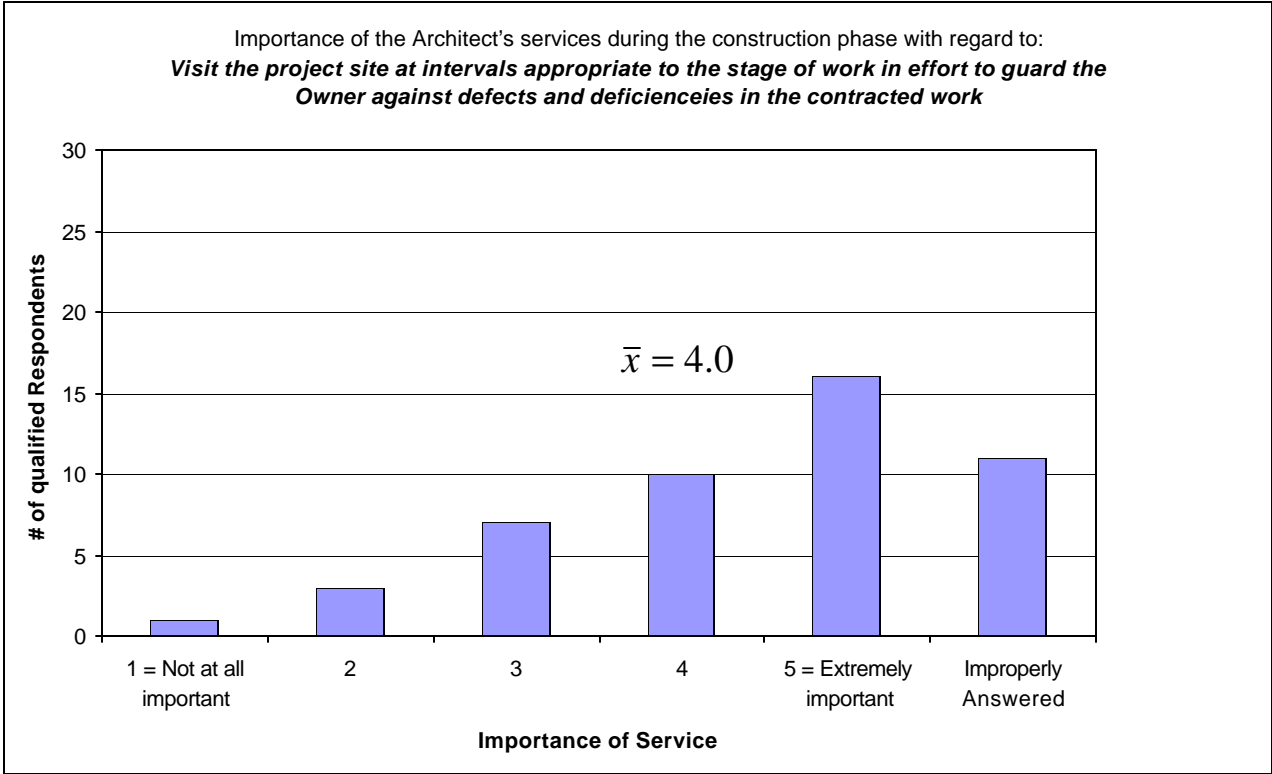


Figure 52: Importance of the Architect's Services in regards to 'visit the project at intervals appropriate to the stage of work in effort to guard the owner against defects and deficiencies in the contracted work'

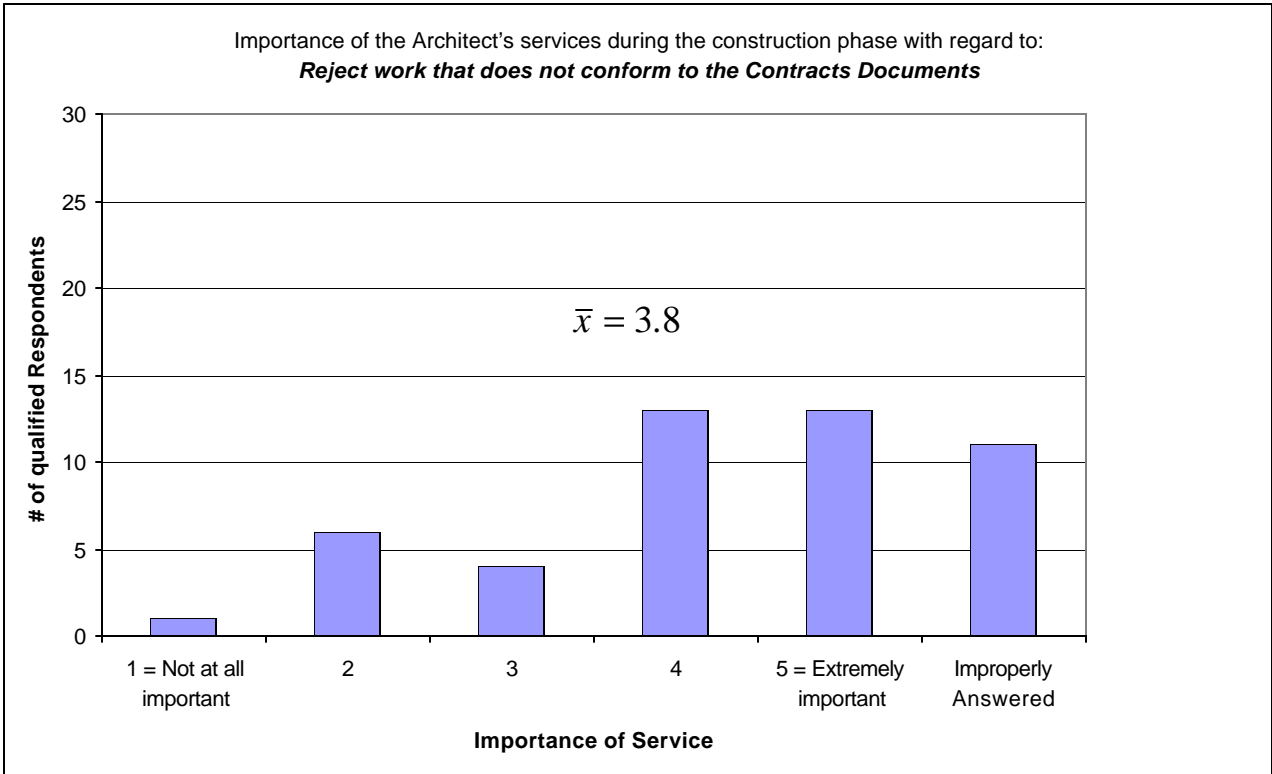


Figure 53: Importance of the Architect's Services in regards to 'reject work that does not conform to the contracts documents'

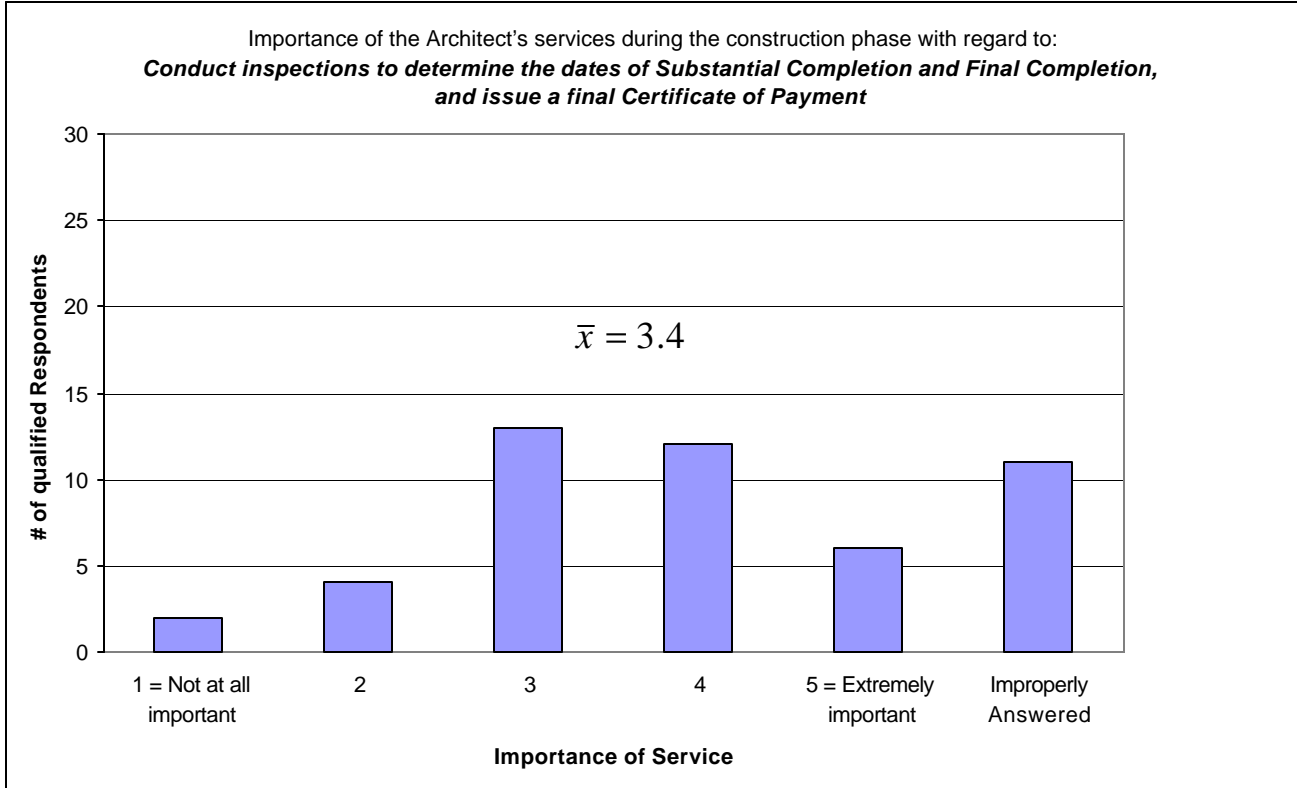


Figure 54: Importance of the Architect's Services in regards to 'conduct inspections to determine the dates of substantial completion and final completion, and issue a final certificate of payment'

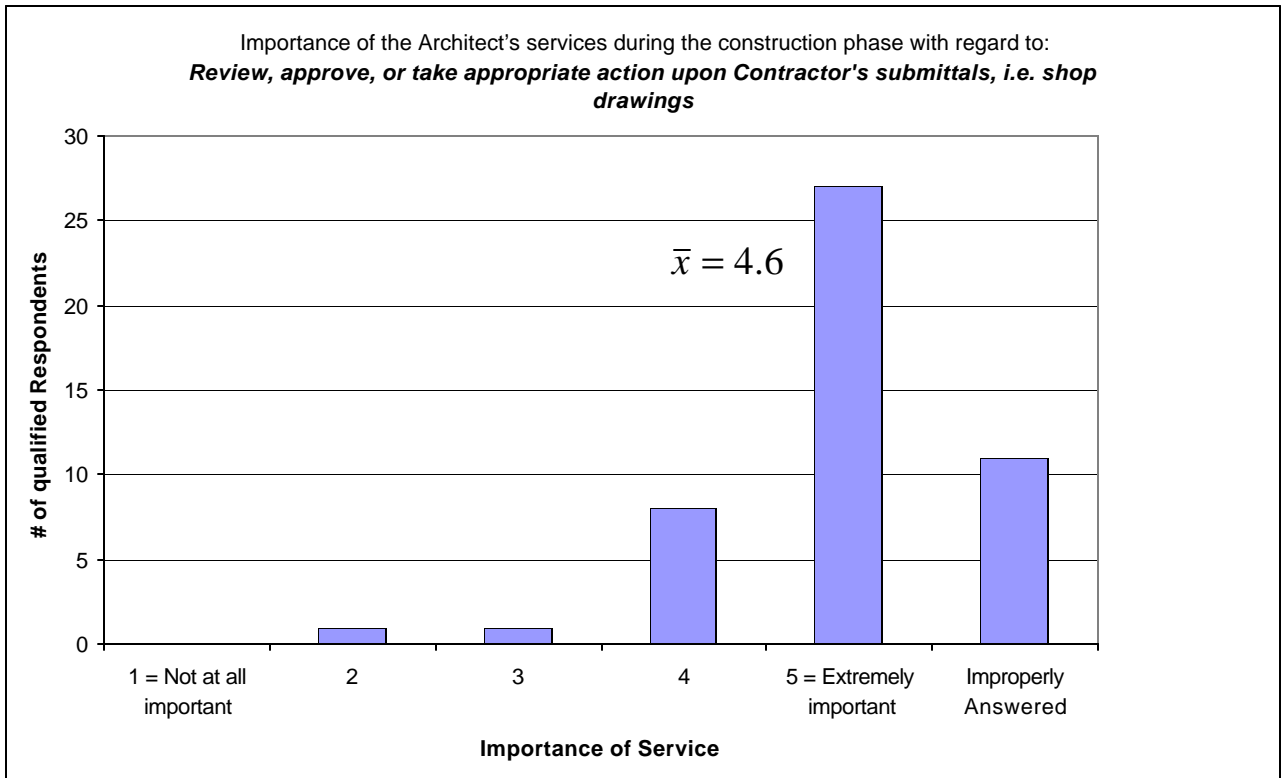


Figure 55: Importance of the Architect's Services in regards to 'review, approve, or take appropriate action upon contractor's submittals, i.e. shop drawings'

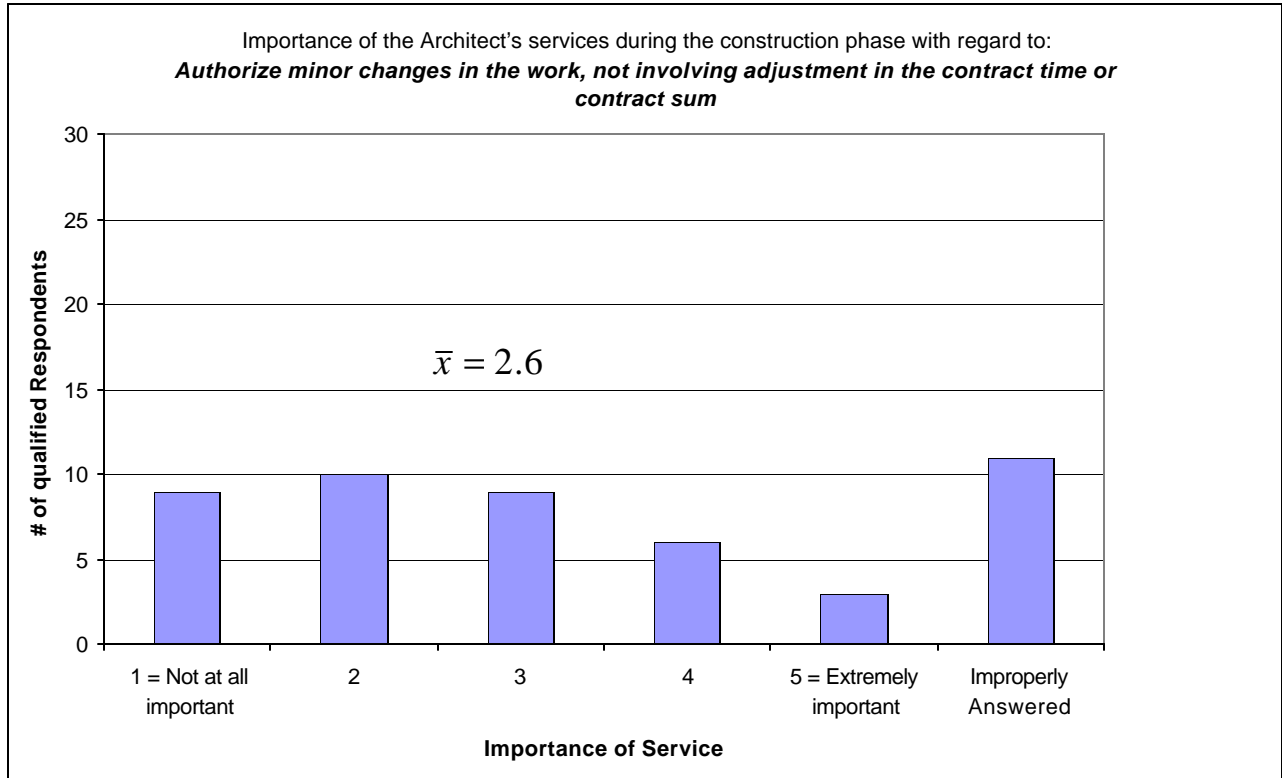


Figure 56: Importance of the Architect's Services in regards to 'authorize minor changes in the work, not involving adjustment in the contract time or contract sum'

Chapter 6.6 fully classified and validated the perceptions of the participants in this phase of the research study were ascertained from qualified respondents, e.g. active, experienced owner-participants in the construction industry. Furthermore, Chapter 6.6 revealed the results gauged of the qualified respondents opinion on the important services of an architect and the use by owners/owners' representatives of an architect for construction oversight or construction management services during the construction phase of a project. Finally, Chapter 6.7 provides the final analysis of this research study by investigating the qualified respondents' perception of the effect that the change of key provisions in AIA A201 from 1951 to 1997 have had on the function of the architect and the value of the architect's services during the construction phase and contract administration.

6.7 ANALYSIS OF PHASE III

Part III: Impact of Change on the Value-added Benefit of the Design Professional of the survey (Questions 9 to Question 13) is the core of the investigation of Phase III. As reported in the results of Phase II in Chapter 5, the self-administered survey consisted of a line of questioning within the following five (5) contract provisions, which were ascertained as having had a material effect on the function performed by the architect/design professional during construction and contract administration:

- Question 9a-c: Role of the Architect (renumbered Q24 – Q26)
- Question 10a-c: Dispute Resolution (renumbered Q27 – Q29)
- Question 11a-c: Claims for Extra Cost (renumbered Q30 – Q32)

Question 12a-c: Shop Drawings (renumbered Q33 – Q35)

Question 13a-c: Changes in the Work (renumbered Q36 – Q38)

For each of the contract provisions, the analysis of Part III of Phase III followed the same three-step process utilized in Phase II, as described in Chapter 3.4.4.2 and implemented in Chapter 5.6.

6.7.1 STEP 1 - PRELIMINARY ANALYSIS OF PART III OF PHASE III

Based on the forty-eight (48) qualified respondents, the Preliminary Analysis of Part III consisted of the tallying, tabulating, and reviewing the survey responses for the preliminary findings presented here:

Regarding the **Role of the Architect** provision: Figure 57 reveals that the qualified respondents believe that the changes to the Role of the Architect provisions from 1951 to 1997 have resulted in the Architect assuming less responsibility during the construction phase. In addition, the preliminary analysis shows from Figure 58 that the owners and owners' representatives more or less disagree with the statement that the changes to the AIA A201 provision concerning the Role of the Architect have increased the value of the Architect's performance of contract administration services during construction." At the same time, with regards to the Role of the Architect provision, the owners and owners' representatives indicate, as shown in Figure 59, that in recent years, the value of the Architect's contract administration services during construction has more or less decreased.

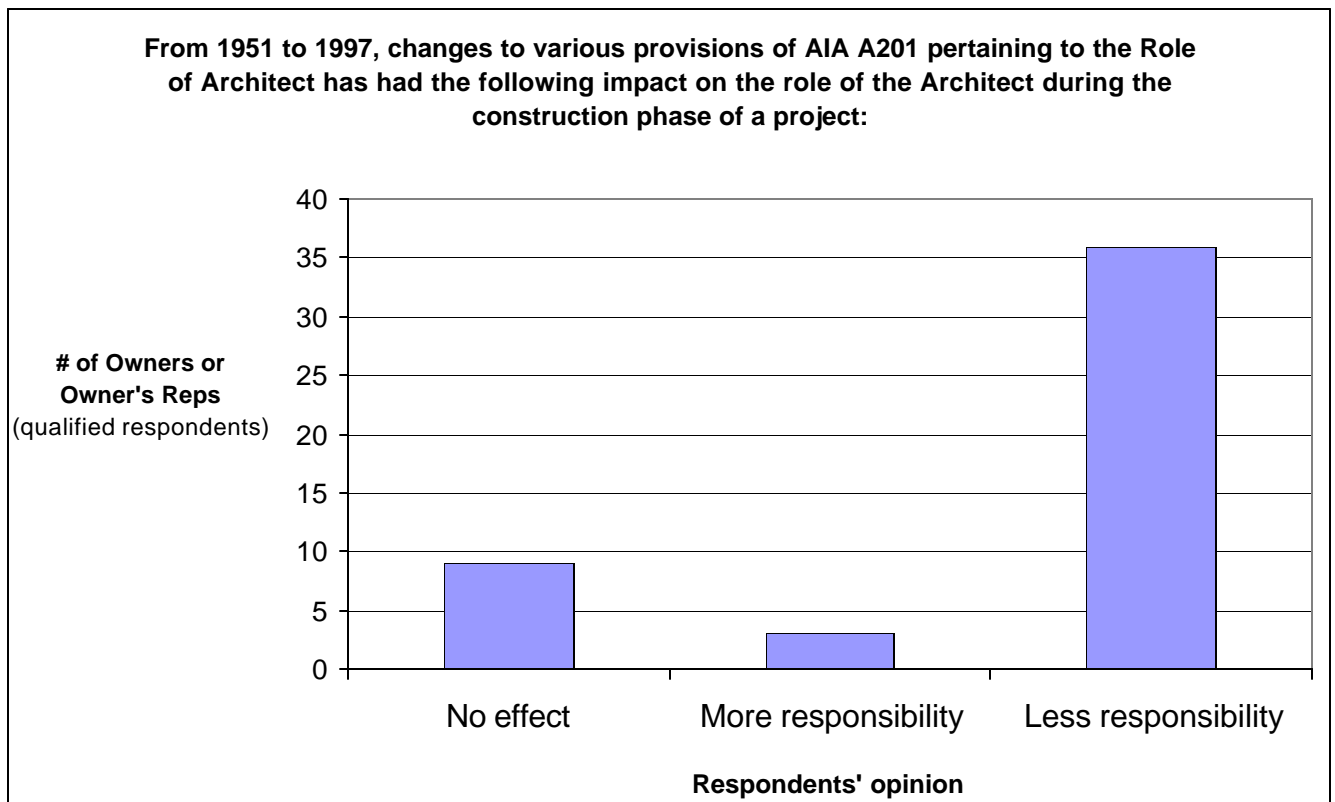


Figure 57: Impact of Changes to AIA A201 Role of the Architect Provisions

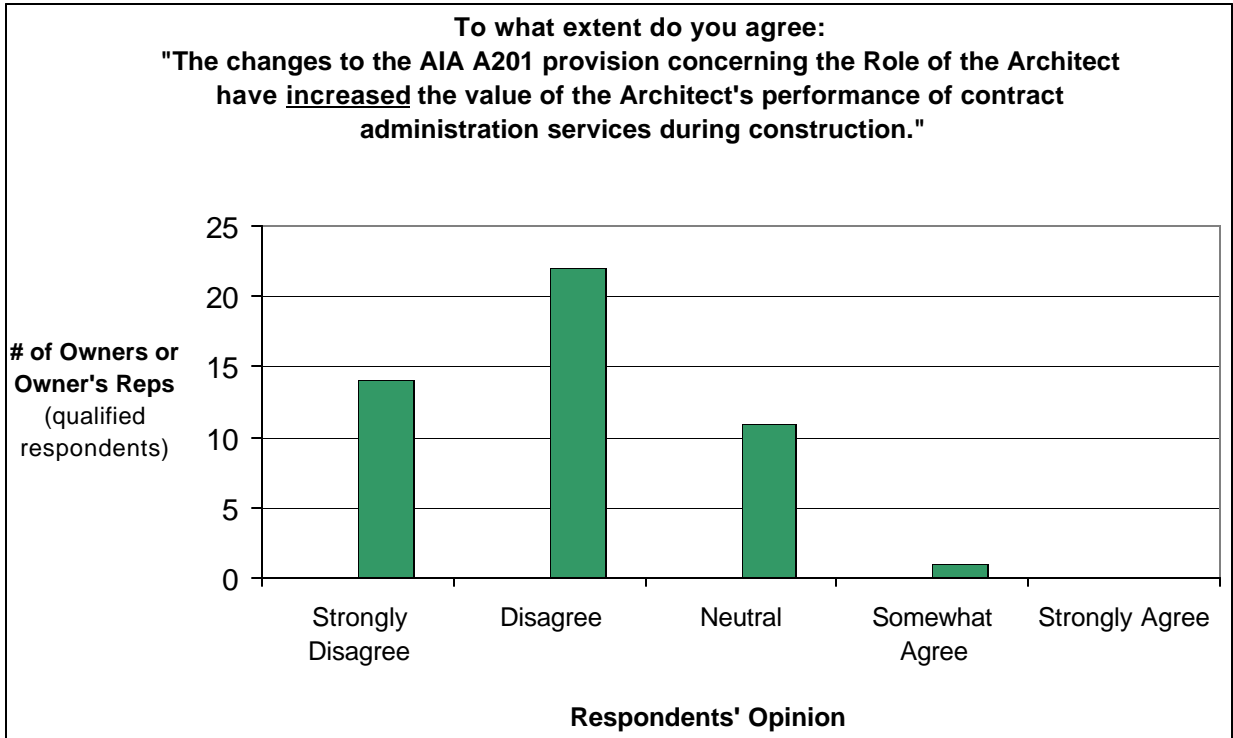


Figure 58: Impact of Changes to AIA A201 Role of the Architect Provisions on the Value of the Architect's Performance

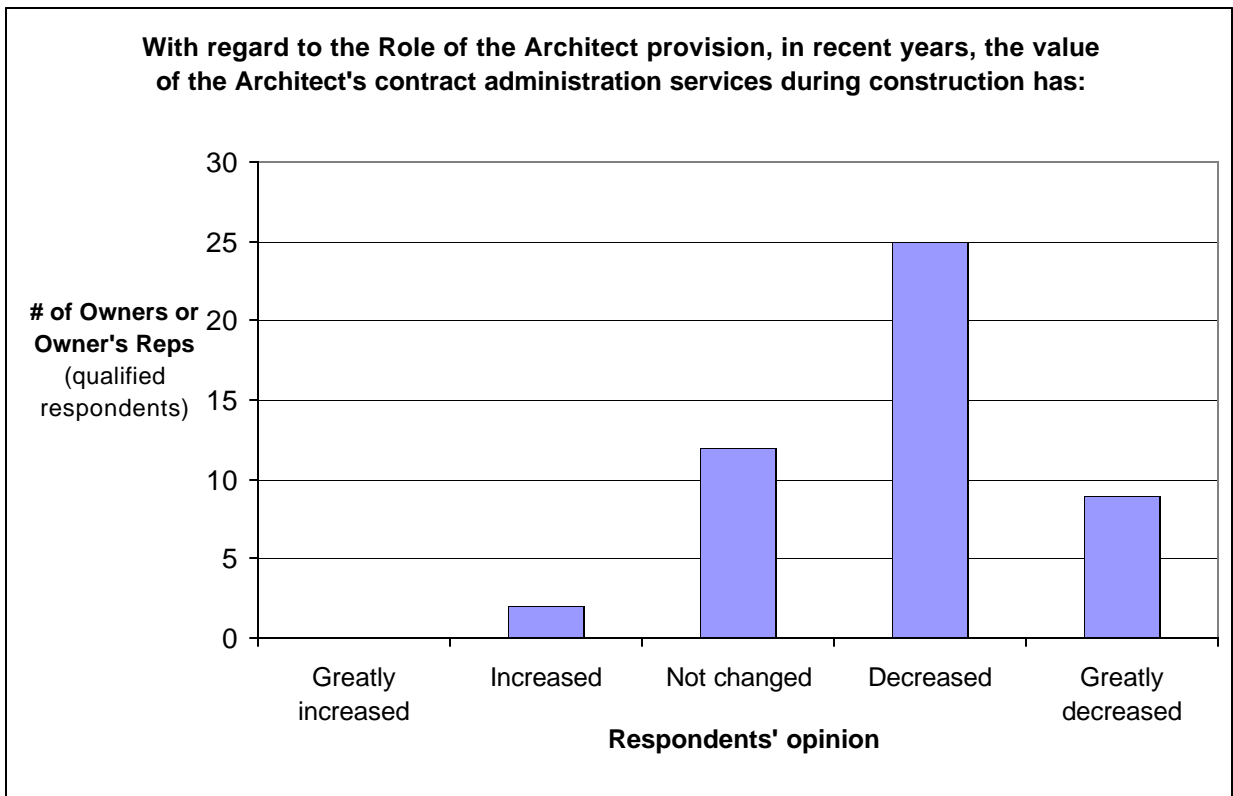


Figure 59: The Value of the Architect's Contract Administration Services during Construction with regards to the Role of the Architect Provision

Regarding the Dispute Resolution provision: Figure 60 reveals that the respondents of owners and owners' representatives believe that the changes to the Dispute Resolution provisions from 1951 to 1997 have resulted in the Architect assuming less responsibility during the construction phase. In addition, the preliminary analysis shows from Figure 61 that the owners and owners' representatives more or less disagree with the statement that the changes to the AIA A201 provision concerning the Dispute Resolution have increased the value of the Architect's performance of contract administration services during construction. At the same time, with regards to the Dispute Resolution provision, the owners and owners' representatives indicate, as shown in Figure 62, that in recent years, the value of the Architect's contract administration services during construction has more or less decreased.

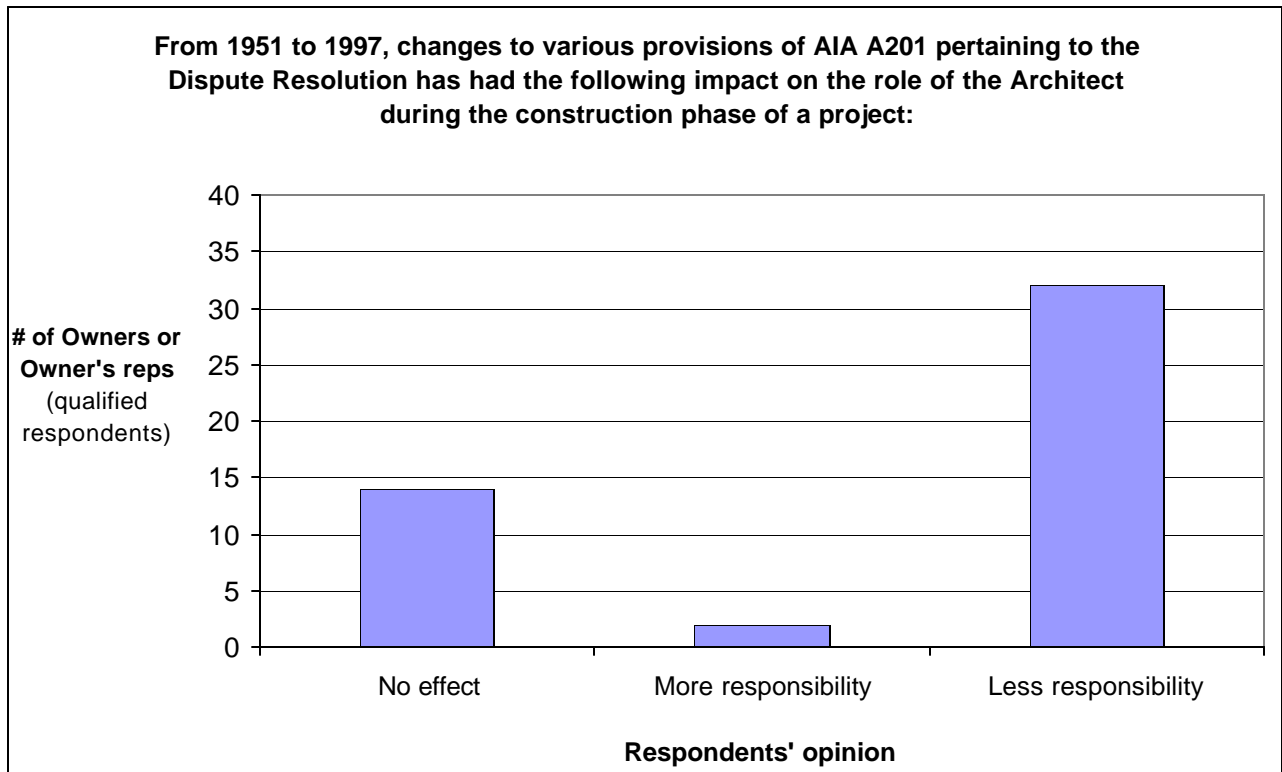


Figure 60: Impact of Changes to AIA A201 Dispute Resolution Provisions

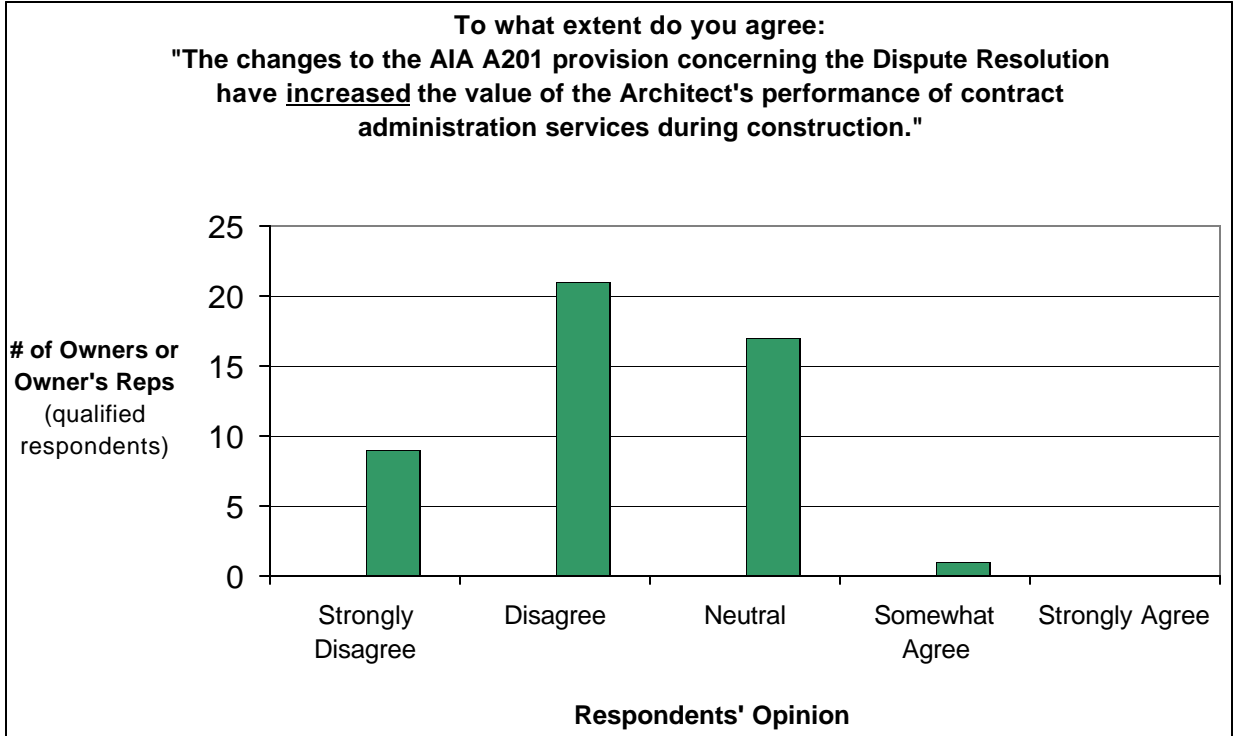


Figure 61: Impact of Changes to AIA A201 Dispute Resolution Provisions on the Value of the Architect's Performance

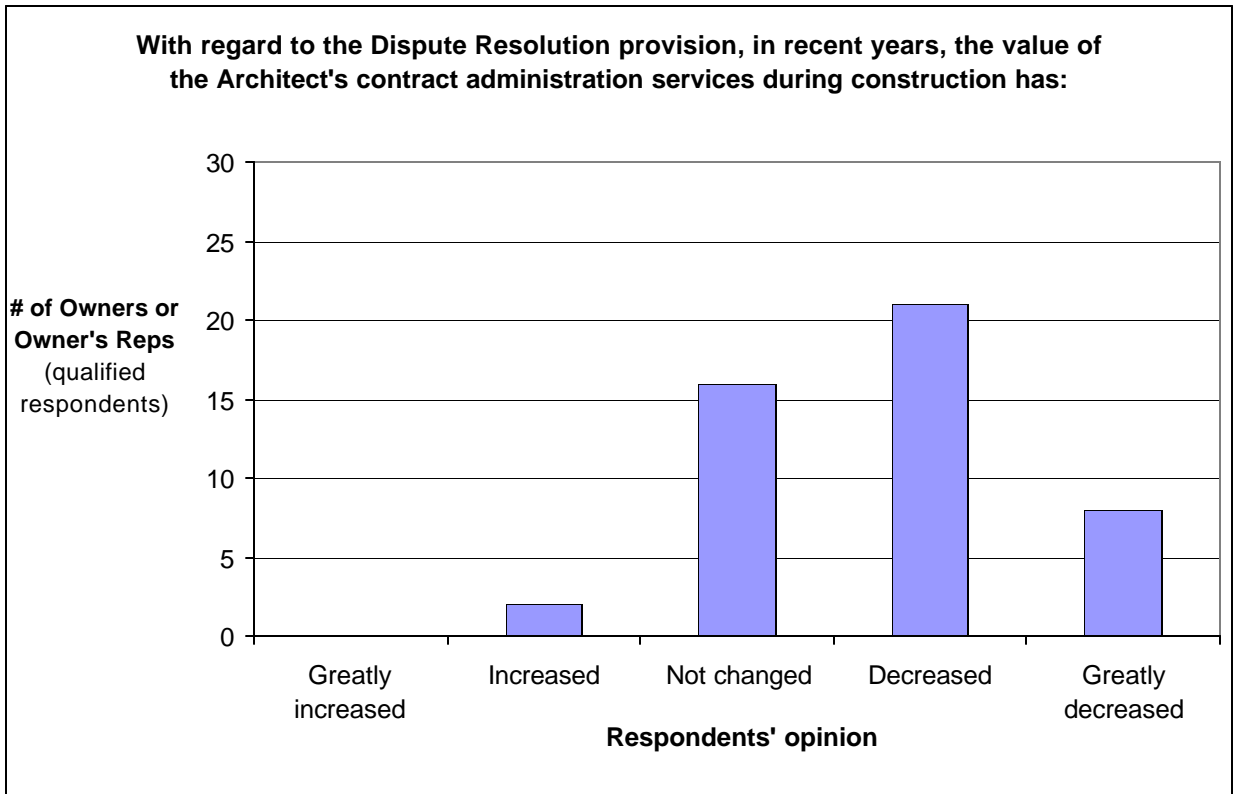


Figure 62: The Value of the Architect's Contract Administration Services during Construction with regards to the Dispute Resolution Provision

Regarding the **Claims for Extra Cost** provision: Figure 63 reveals that the respondents of owners and owners' representatives believe that the changes to the Claims for Extra Cost provisions from 1951 to 1997 have resulted in the Architect assuming less responsibility during the construction phase. In addition, the preliminary analysis shows from Figure 64 that the owners and owners' representatives more or less disagree with the statement that the changes to the AIA A201 provision concerning the Claims for Extra Cost have increased the value of the Architect's performance of contract administration services during construction." At the same time, with regards to the Claims for Extra Cost provision, the owners and owners' representatives indicate, as shown in Figure 65, that in recent years, the value of the Architect's contract administration services during construction has more or less decreased.

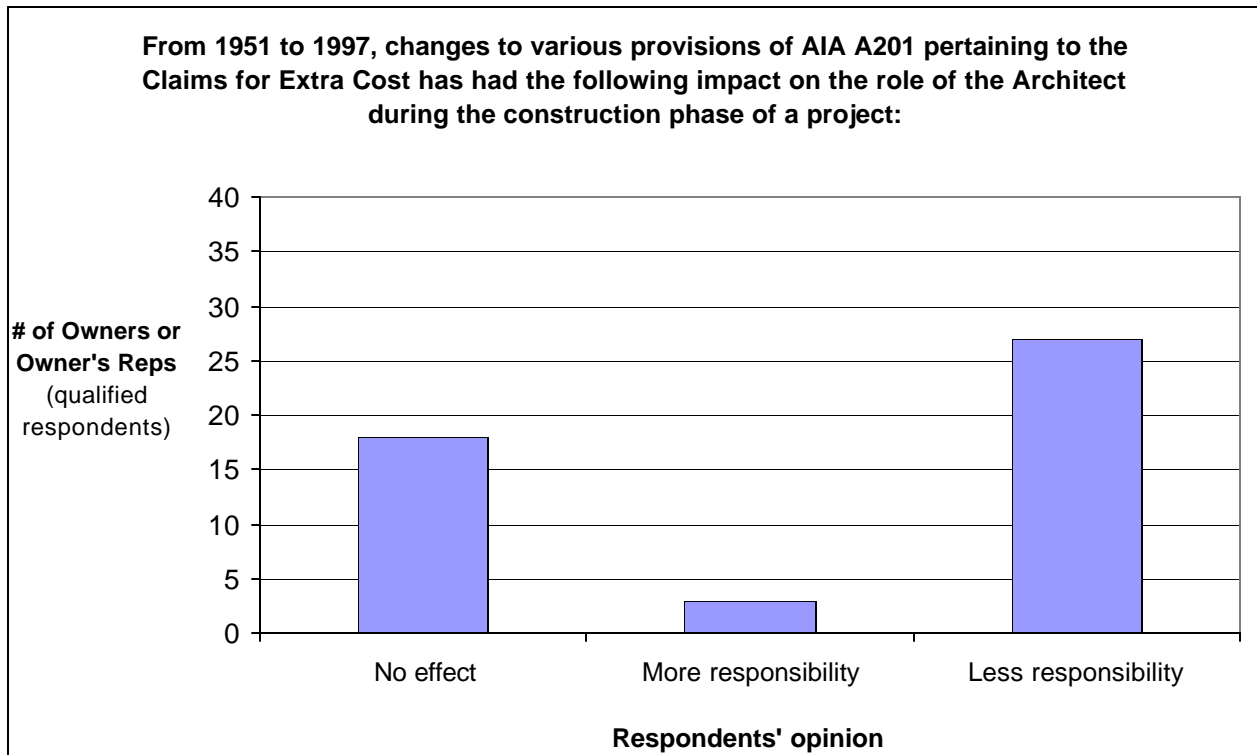


Figure 63: Impact of Changes to AIA A201 Claims for Extra Work Provisions

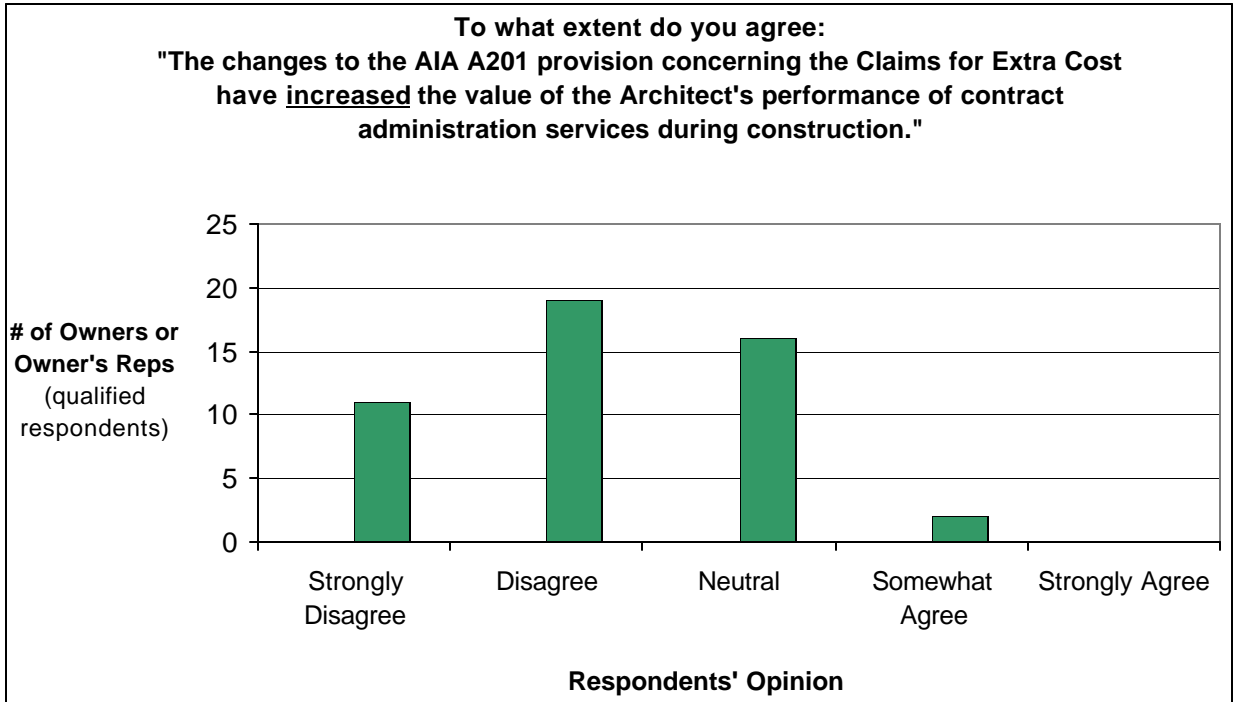


Figure 64: Impact of Changes to AIA A201 Claims for Extra Cost provisions on the Value of the Architect's Performance

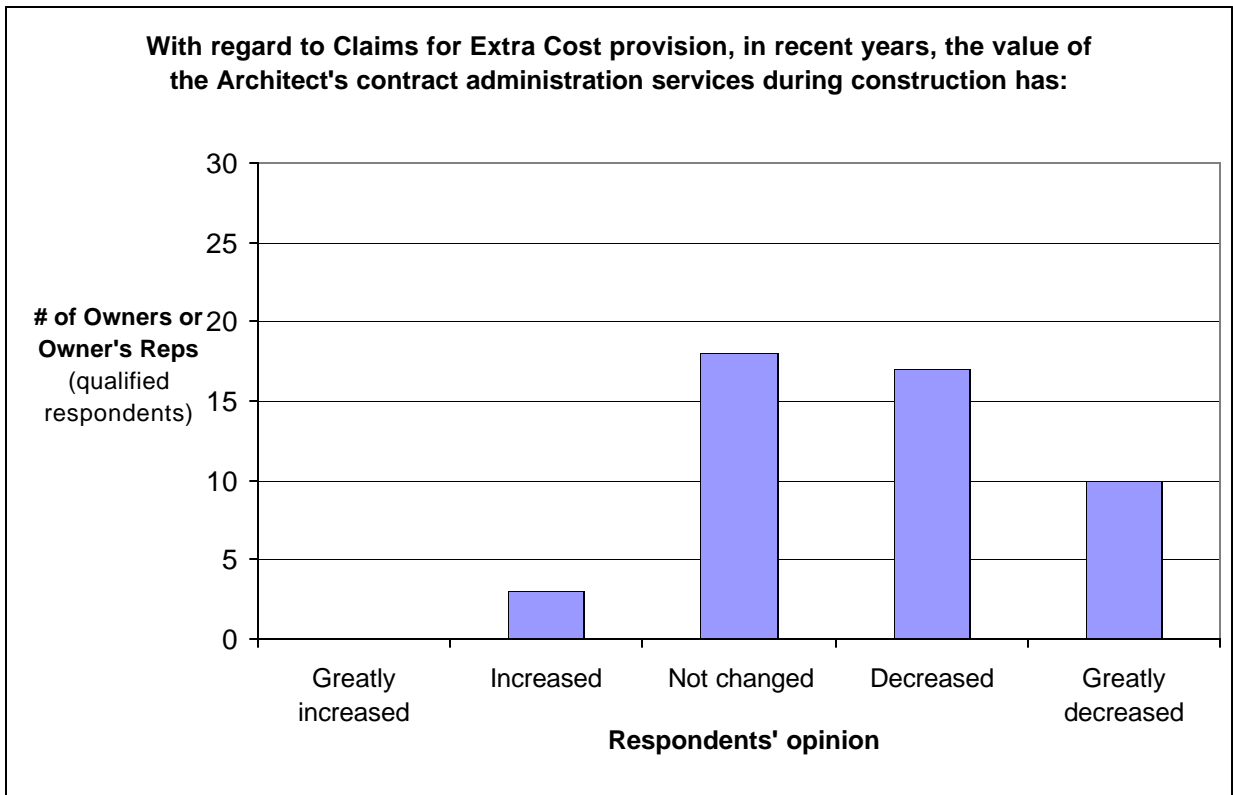


Figure 65: The Value of the Architect's Contract Administration Services during Construction with regards to the Claims for Extra Cost Provision

Regarding the **Shop Drawings** provision: Figure 66 reveals that the respondents of owners and owners' representatives believe that the changes to the Shop Drawings provisions from 1951 to 1997 have resulted in the Architect assuming less responsibility during the construction phase. In addition, the preliminary analysis shows from Figure 67 that the owners and owners' representatives more or less disagree with the statement that the changes to the AIA A201 provision concerning the Shop Drawings have increased the value of the Architect's performance of contract administration services during construction." At the same time, with regards to the Shop Drawings provision, the owners and owners' representatives indicate, as shown in Figure 68, that in recent years, the value of the Architect's contract administration services during construction has more or less decreased.

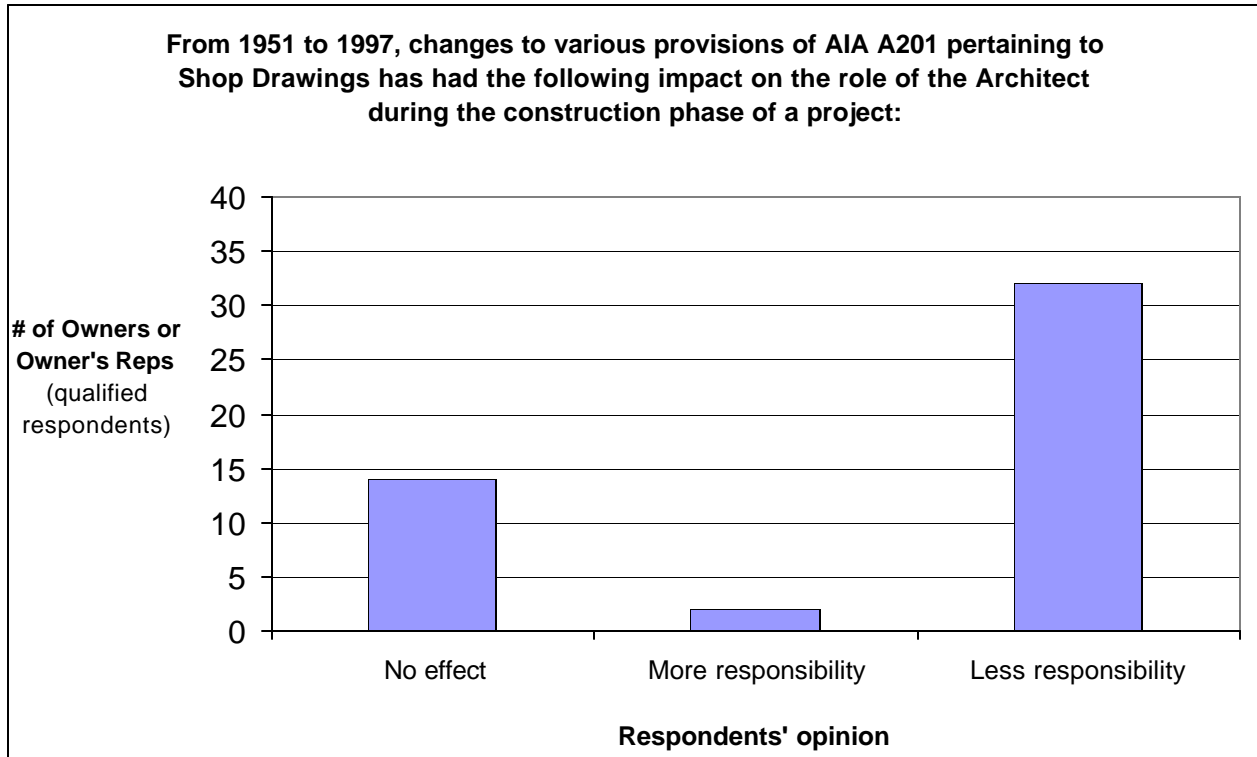


Figure 66: Impact of Changes to AIA A201 Shop Drawings Provisions

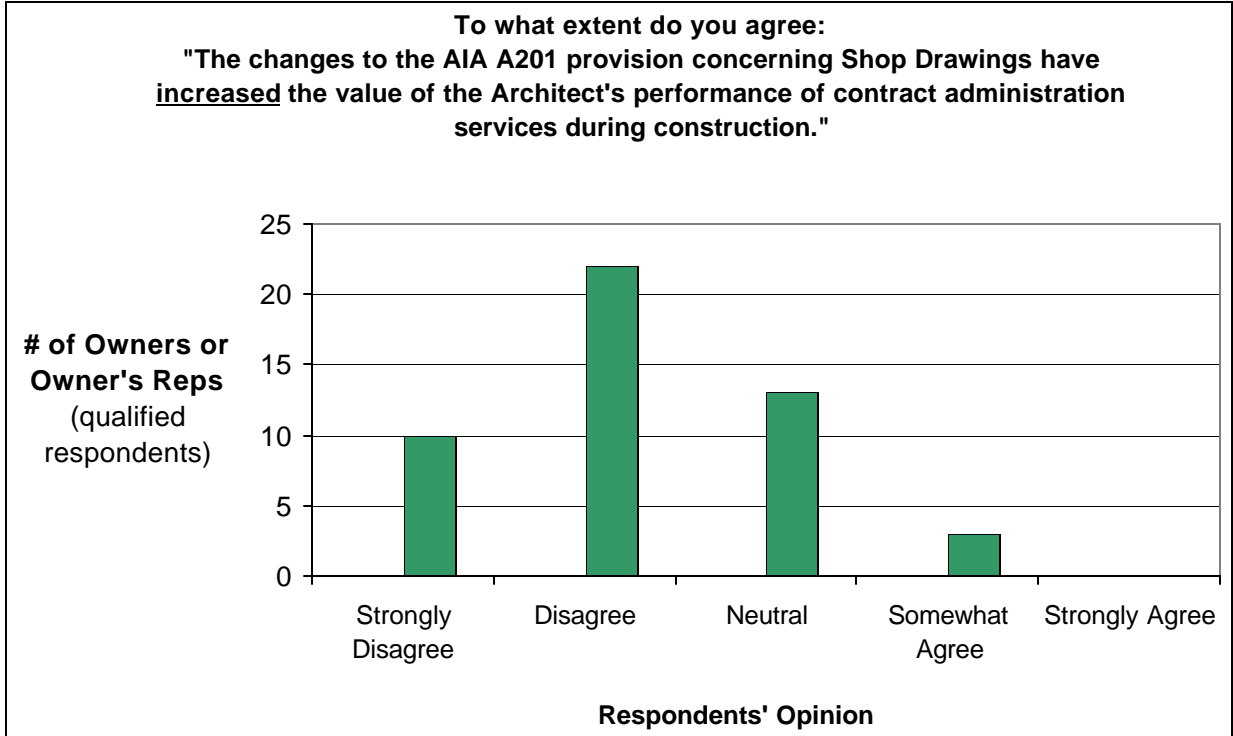


Figure 67: Impact of Changes to AIA A201 Shop Drawings Provisions on the Value of the Architect's Performance

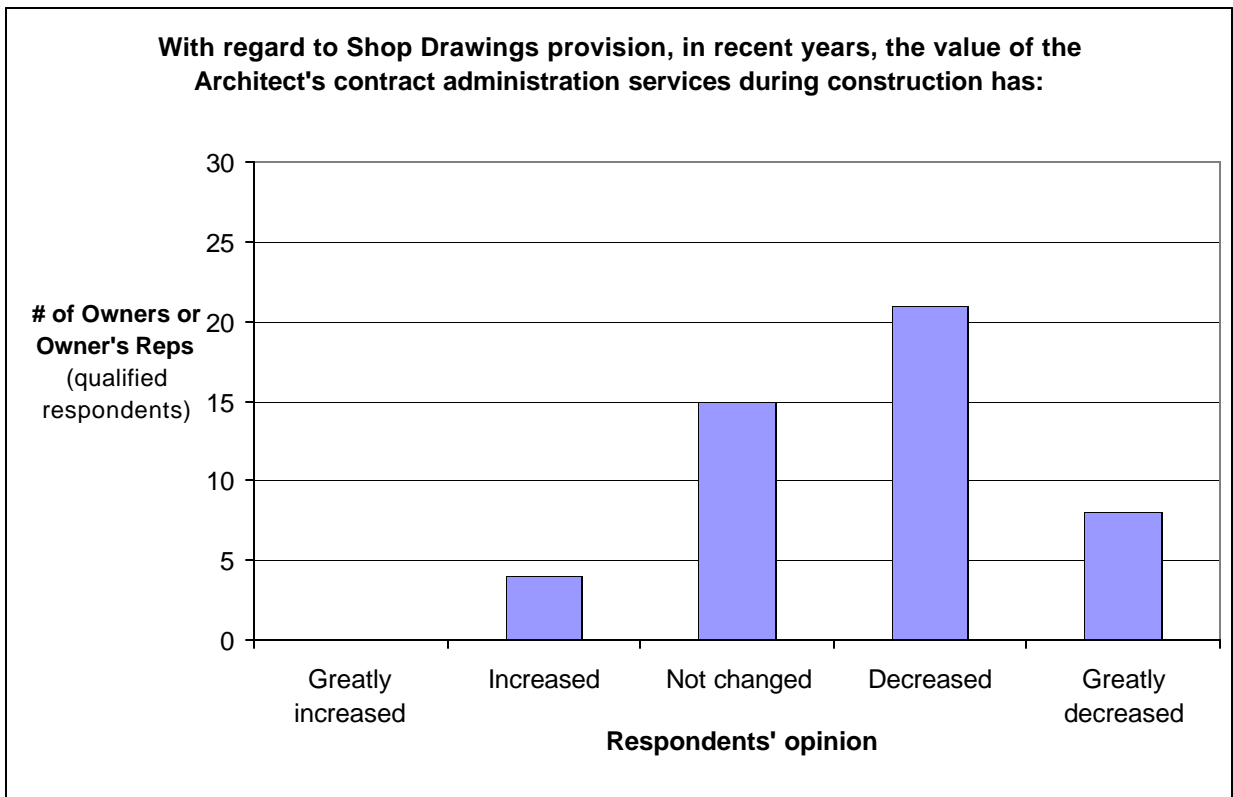


Figure 68: The Value of the Architect's Contract Administration Services during Construction with regards to the Shop Drawings Provision

Regarding the **Changes in the Work** provision: Figure 69 reveals that the respondents of owners and owners' representatives believe that the changes to the Changes in the Work provisions from 1951 to 1997 have resulted in the Architect assuming less responsibility during the construction phase. In addition, the preliminary analysis shows from Figure 70 that the owners and owners' representatives more or less disagree with the statement that the changes to the AIA A201 provision concerning the Changes in the Work have increased the value of the Architect's performance of contract administration services during construction." At the same time, with regards to the Changes in the Work provision, the owners and owners' representatives indicate, as shown in Figure 71, that in recent years, the value of the Architect's contract administration services during construction has more or less decreased.

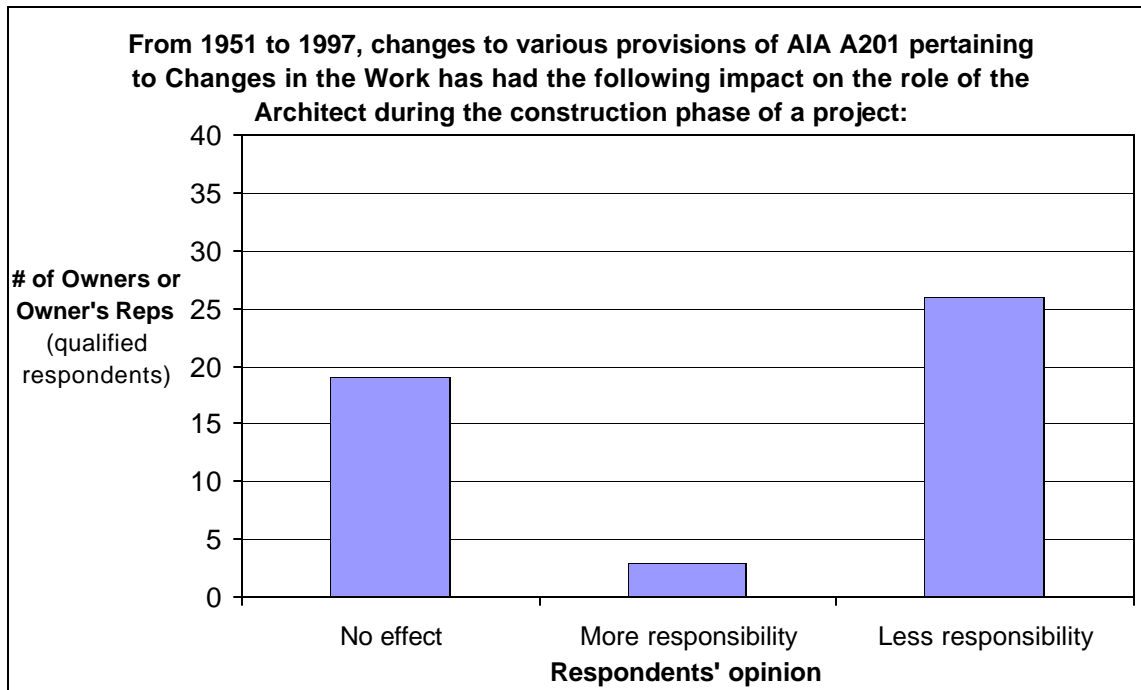


Figure 69: Impact of Changes to AIA A201 Changes in the Work Provisions

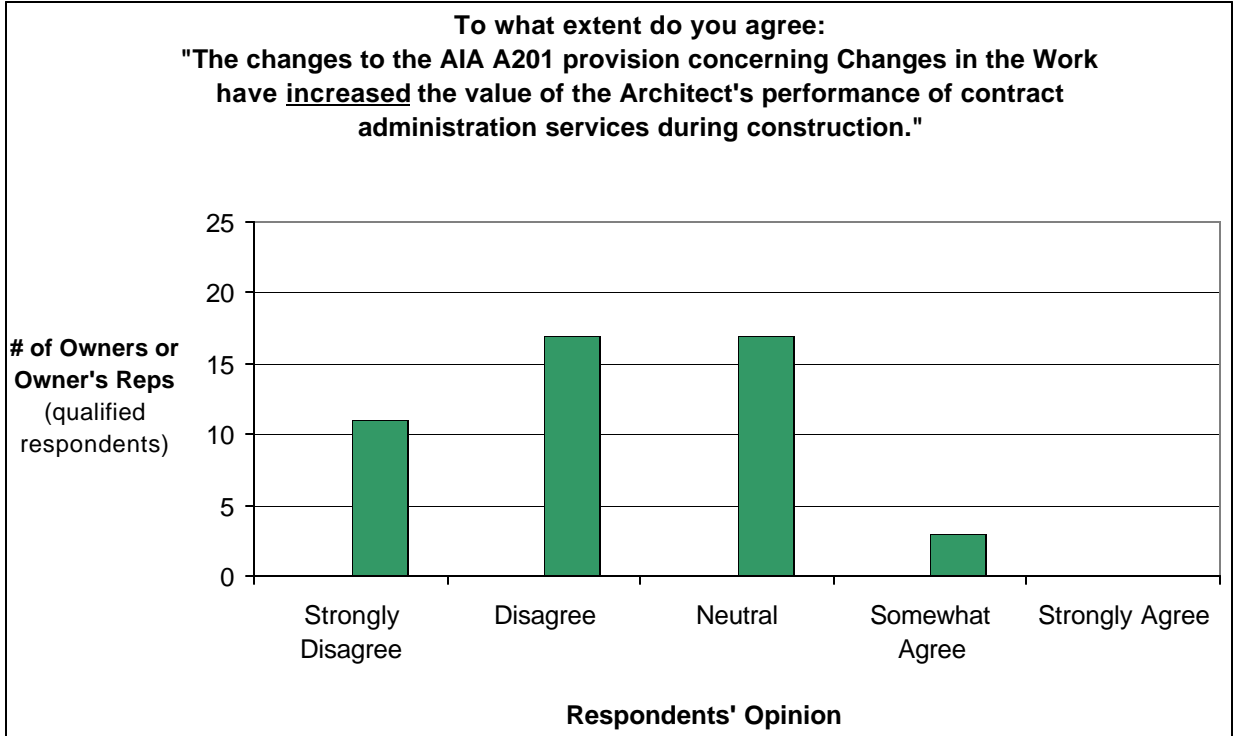


Figure 70: Impact of Changes to AIA A201 Changes in the Work provisions on the Value of the Architect's Performance

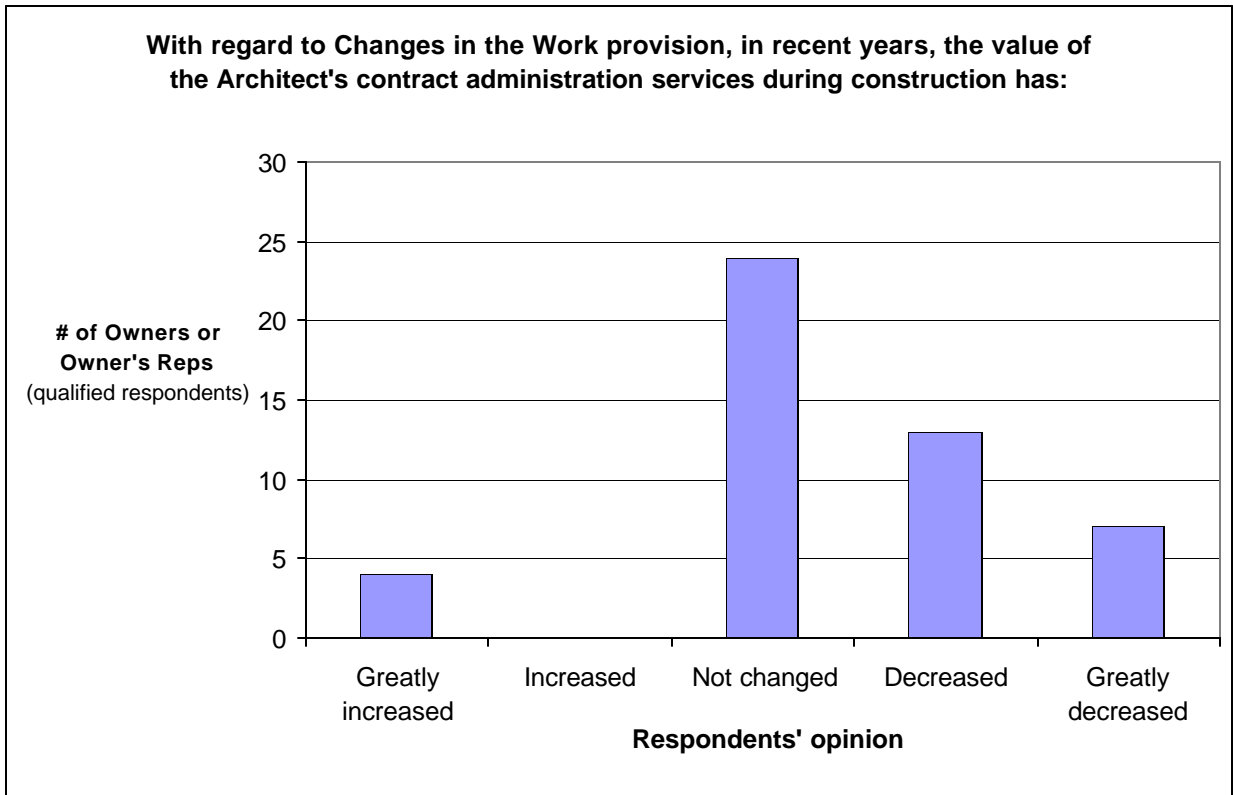


Figure 71: The Value of the Architect's Contract Administration Services during Construction with regards to the Changes in the Work Provision

6.7.2 STEP 2 - STATISTICAL ANALYSIS OF PART III OF PHASE III

Based on the preliminary findings established from Step 1 reported in Chapter 6.6.1, hypotheses were defined and the respective statistical tests were conducted to confirm or deny the preliminary findings. The analysis is presented here:

First, the statistical analysis employed was the commonly used method of the Chi-Square test to statistically check the research hypotheses investigated. Chi-Square is a non-parametric method, which does not require distributional assumptions about the data and is appropriately used to analyze survey responses when they are not ordered, but categorical (e.g. when the responses vary from “no effect”, “more responsibility”, or “less responsibility”). The Chi-Square Test is appropriately used to analyze categorical data, such as Questions 9a, 10a, 11a, 12a, and 13a of the Phase III survey.

The Chi-Square Test compares the “expected” and “observed” frequencies of the survey responses. It detects the differences between suggested (“expected”) response frequency distribution and “observed” distribution. For this research, the test framework expected frequencies were favoring neutral (score = 3) answers, e.g., the expected frequency distribution is set at 60% (no effect), 5% (more responsibility), 35% (less responsibility). The Chi-Square frequency table tabulates the observed score of the respondents. And, by executing the Chi-Square test with the expected frequency distribution noted above, the difference between observed and expected frequency is calculated and determined to be significant or not (e.g. the asymptotic significance or pvalue is less than the universally accepted 0.05). If the observed frequency of the neutral answer was found to be significantly lower than expected, then the alternative hypothesis was chosen over the null hypothesis. If the observed frequency of the neutral answer was found to be higher than expected, then the null hypothesis was chosen over the alternative hypothesis. Appendix D5 provides the complete output of the descriptive and statistical data. Appendix D6 provides the results of the three-step statistical analysis of the data recorded for Part III of the survey, which is the core of the investigation of Phase III of this research and the central part of the dissertation research, e.g. Questions 9a, 10a, 11a, 12a, and 13a renumbered Q24, Q27, Q30, Q33, and Q36, respectively.

In Phase III, descriptive statistics was used to describe basic patterns in the data, and summarize the characteristics of the participants and the overall survey results, e.g., Questions 1 – 8 renumbered Q1 – Q23. The Single-Sample T-test was applied in Phase III to statistically check the research hypotheses investigated in the survey questionnaire, e.g., Question 9b, 9c, 10b, 10c, 11b, 11c, 12b, 12c, 13b, and 13c renumbered Q25, Q26, Q28, Q29, Q31, Q32, Q34, Q35, Q37, and Q38, respectively. Below are step-by-step illustrations of the statistical analysis, which were recurrently used for the proceedings for all questions of *Part III: Impact of Change on the Value-added Benefit of the Design Professional* of the Phase III survey:

For example,

QUESTION 10: DISPUTE RESOLUTION CONTRACT PROVISION

A description of the responses to Phase III, Part III survey Question 10A is captured in the below figure, Figure 72.

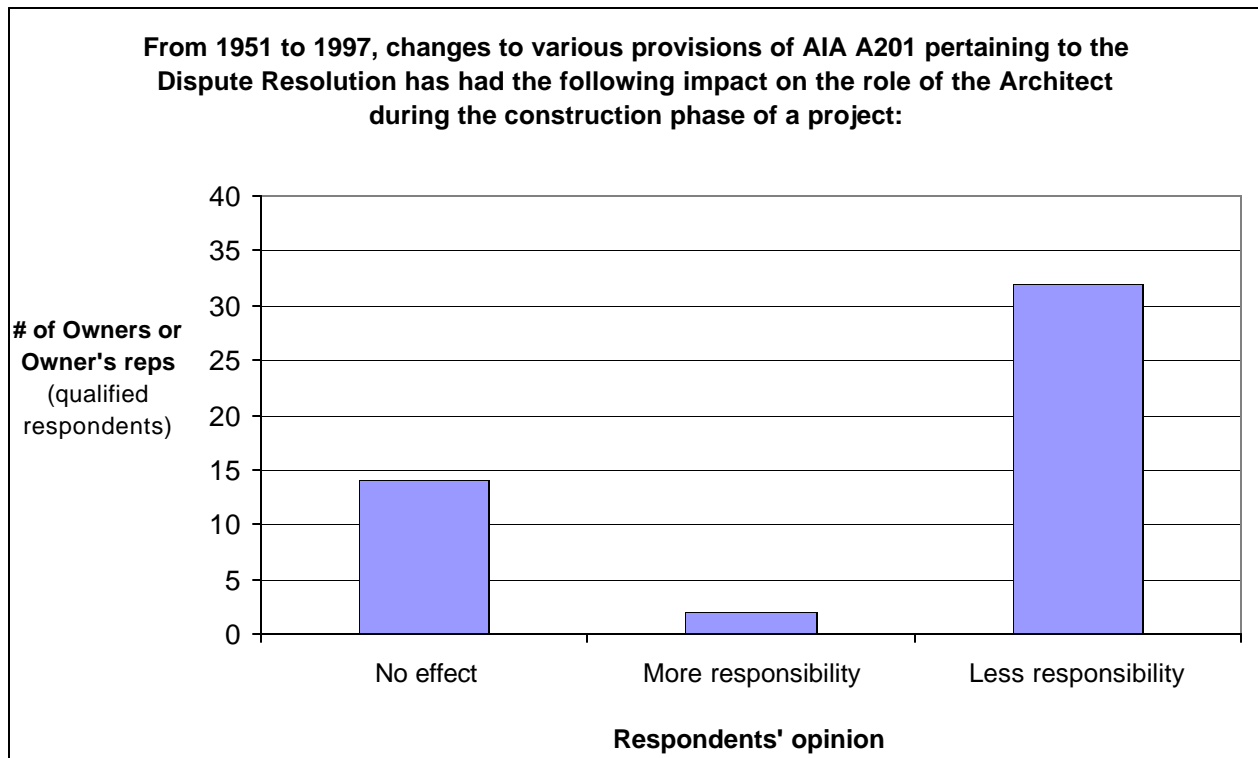


Figure 72: Impact of Changes to AIA A201 Dispute Resolution Provisions

Hypothesis A: From 1951 to 1997, changes to various provisions of AIA A201 pertaining to the **Dispute Resolution** have had an impact on the role of the Architect during the construction phase of a project. (Question 10a renumbered to Question 27 for analysis)

H₀ (null hypothesis): From 1951 to 1997, changes to various provisions pertaining to the AIA A201 **Dispute Resolution** provision have had no effect on the role of the Architect during the construction phase of a project.

H_A (alternative hypothesis): From 1951 to 1997, changes to various provisions pertaining to the AIA A201 **Dispute Resolution** provision have had an effect of less responsibility on the role of the Architect during the construction phase of a project.

Test Method: Chi-Square Test

Test Results: For the Chi-Square test, the observed p-value is equal to 0.001, which is less than 0.05 (See Appendix D5, all Chi-Square Test results on page 16 of 17). Hence, the null hypothesis (*H₀*) is rejected in favor of the alternative hypothesis (*H_A*). Also, there exists a Chi-Square frequency distribution of 14 respondents scored 'no effect', 2 respondents for 'more responsibility', and 32 respondents for 'less responsibility'. Therefore, the dominant cell of responses (32 of 48) selected 'less responsibility'. (See Appendix D5, page 10 of 17, Question 27).

Conclusion: From 1951 to 1997, changes to various provisions pertaining to the **Dispute Resolution** provision have resulted in the Architect assuming less responsibility during the construction phase of a project, which is reflected in the descriptive results shown in Figure 72.

A description of the responses to Question 10B is captured in the below figure, Figure 73.

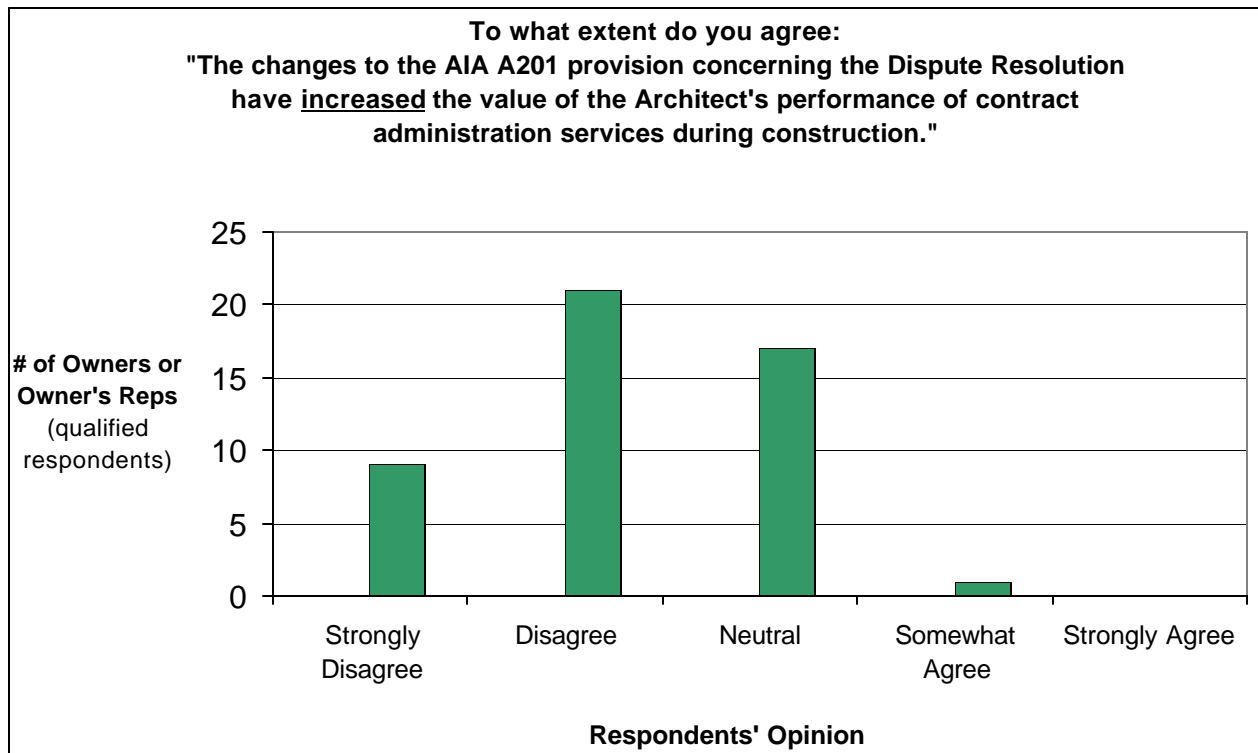


Figure 73: Impact of Changes to AIA A201 Dispute Resolution Provisions on the Value of the Architect's Performance

Hypothesis B: Changes to the AIA A201 provision concerning the **Dispute Resolution** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project. (Question 10b renumbered to Question 28 for analysis)

H0: Changes to the AIA A201 provision concerning the **Dispute Resolution** have increased the value of the Architect's performance of contract administration services during the construction phase of a project. The mean score for the respondent's opinion on the increased value of the Architect's performance due to changes to the AIA A201 **Dispute Resolution** provision on the of contract administration services during the construction phase of a project is *equal or greater than* the neutral value of 3. (In other words, a respondent's opinion is neutral or skewed towards 'disagrees' with the hypothesis.)

HA: Changes to the AIA A201 provision concerning the **Dispute Resolution** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project. The mean score for the respondent's opinion on the increased value of the Architect's performance due to changes to the AIA A201 **Dispute Resolution** provision on the of contract administration services during the construction phase of a project is *less than* the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.001, which is less than the universally accepted value of 0.05, and a mean difference of 0.79 (See Appendix D5, page 17 of 17, Question 28). Hence, it is concluded that the mean score for the respondent's opinion on the material effect of the **Dispute Resolution** provision on the construction phase and contract administration is greater than the neutral value of 3. The mean for Question 28 is 3.7917

(See Appendix D5, page 17 of 17). Therefore, the null hypothesis (H_0) is accepted. The opinions of the respondents are skewed towards 'disagree.'

Conclusion: Changes to the AIA A201 provision concerning the **Dispute Resolution** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project, which is reflected in the descriptive results shown in Figure 73.

A description of the responses to Question 10C is captured in the below figure, Figure 74.

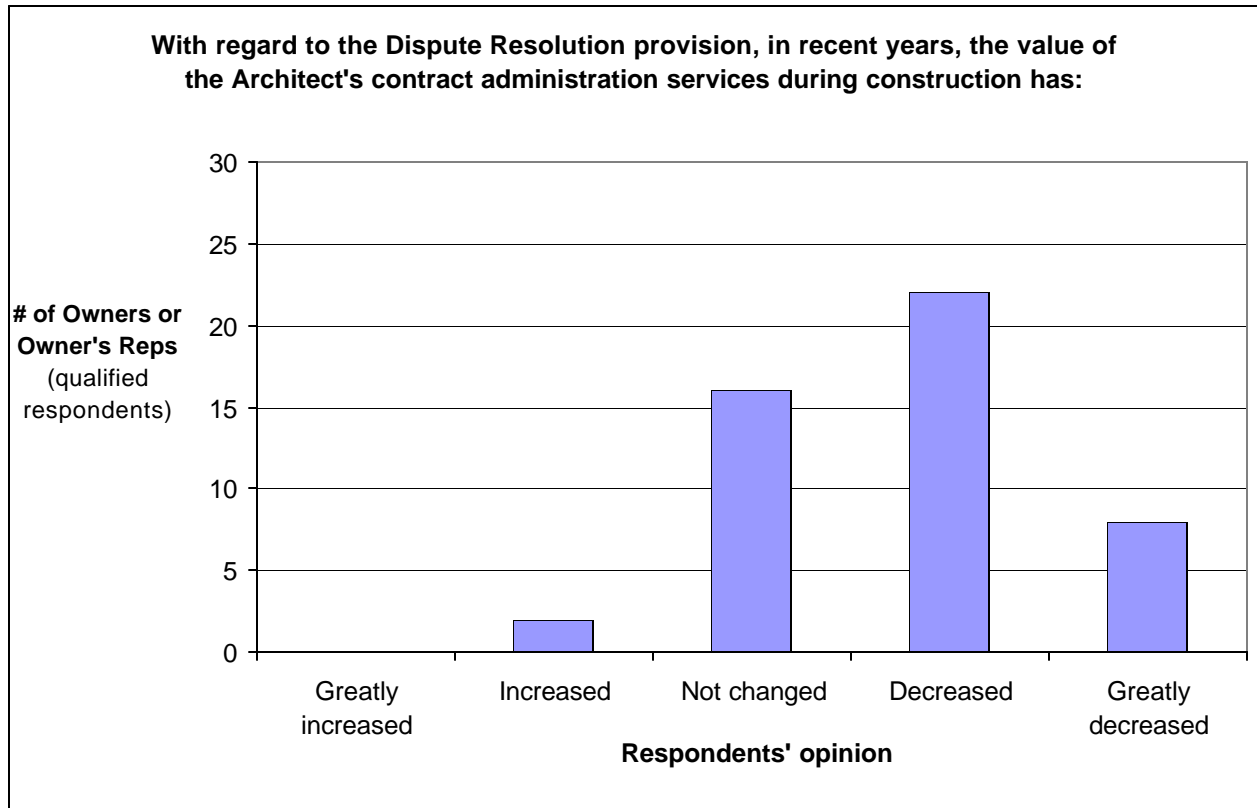


Figure 74: The Value of the Architect's Contract Administration Services during Construction with regards to the Dispute Resolution Provision

Hypothesis C: With regard to the **Dispute Resolution** provision, Owners or Owners' representatives perceive the value of the Architect's contract administration services during construction has decreased in recent years. (Question 10c renumbered to Question 29 for analysis)

H₀: With regard to the **Dispute Resolution** provision, Owners or Owners' representatives perceive the value of the Architect's contract administration services during construction has increased in recent years. The mean score for the respondent's opinion that the value of the Architect's contract administration services during construction has decreased in recent years is *equal or greater than* the neutral value of 3. (In other words, the respondent is skewed towards the direction of 'not changed', 'decreased', or 'greatly decreased'.)

H_A: With regard to the **Dispute Resolution** provision, Owners or Owners' representatives perceive the value of the Architect's contract administration services during construction has decreased in recent years. The mean score for the respondent's opinion that the value of the Architect's contract administration services during construction has decreased in recent years is *less than* the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'greatly increased' and 'increased'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.001, which is less than the universally accepted value of 0.05, and a mean difference of 0.74 (See Appendix D5, page 17 of 17, Question 29). Hence, it is concluded that the mean score for the respondent's opinion on the material effect of the **Dispute Resolution** provision on the construction phase and contract administration is greater than the neutral value of 3. The mean for Question 29 is 3.7447 (See Appendix D5, page 17 of 17). Therefore, the null hypothesis (H_0) is accepted. The opinions of the respondents are skewed towards 'decreased.'

Conclusion: With regard to the **Dispute Resolution** provision, Owners or Owners' representatives perceive the value of the Architect's contract administration services during construction have decreased in recent years, which is reflected in the descriptive results shown in Figure 74.

Figure 75 provides a summary in the following matrices of the analysis of each provision, as performed above. Chapter 6.6.3 reports the findings of Phase III. Complete results of the test statistics are provided in Appendix D5 and the complete interpretations of the analyses are detailed in the Appendix D6.

Figure 75: Summary of the Statistical analysis of Each of the Five (5) investigated Key Provisions

Survey Question	Survey Question's Sequential Order	Contract Provision	Null Hypothesis	Alternative Hypothesis	Statistical Analysis				Results	Conclusion
					Test	Parametric p-value (mean)	Non-parametric p-value (chi-square frequency)	Source: page # of App. D5 / D6		
9a	Q24	Role of the Architect	Changes to various provisions pertaining to the Role of the Architect provision have had no <u>effect</u> on the role of the Architect on a project during the construction phase of a project.	Changes to various provisions pertaining to the Role of the Architect provision have had an effect of <u>less responsibility</u> on the role of the Architect during the construction phase of a project.	Chi-Square	n/a	0.001 (36 of 48 respondents chose the observed score = 3)	pg.14 & 16 / pg.2	The null hypothesis is rejected in favor of the alternative hypothesis.	Changes to various provisions pertaining to the Role of the Architect provision have resulted in the Architect assuming <u>less responsibility</u> during the construction phase of a project.
9b	Q25	Role of the Architect	Changes to AIA A201 provisions pertaining to the Role of the Architect provision have increased the value of the Architect's performance of contract administration services during the construction phase of a project.	Changes to AIA A201 provisions pertaining to the Role of the Architect provision have not increased the value of the Architect's performance of contract administration services during the construction phase of a project.	Single T-test	0.001 (4.02)	n/a	pg.17 / pg.3	The null hypothesis is rejected in favor of the alternative hypothesis.	Changes to the AIA A201 provision concerning the Role of the Architect have <u>not increased</u> the value of the Architect's performance of contract administration services during the construction phase of a project.
9c	Q26	Role of the Architect	With regard to the Role of the Architect provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has <u>increased</u> in recent years.	With regard to the Role of the Architect provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has <u>decreased</u> in recent years.	Single T-test	0.001 (3.85)	n/a	pg.17 / pg.4	The null hypothesis is rejected in favor of the alternative hypothesis.	With regard to the Role of the Architect provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has <u>decreased</u> in recent years.

Survey Question	Survey Question's Sequential Order	Contract Provision	Null Hypothesis	Alternative Hypothesis	Statistical Analysis				Results	Conclusion
					Test	Parametric p-value (mean)	Non-parametric p-value (chi-square frequency)	Source: page # of App. D5 / D6		
10a	Q27	Dispute Resolution	Changes to various provisions pertaining to the Dispute Resolution provision have had no <u>effect</u> on the role of the Architect on a project during the construction phase of a project.	Changes to various provisions pertaining to the Dispute Resolution provision have had an effect of <u>less responsibility</u> on the role of the Architect during the construction phase of a project.	Chi-Square	n/a	0.001 (32 of 48 respondents chose the observed score = 3)	pg. 14 & 16 / pg.5	The null hypothesis is rejected in favor of the alternative hypothesis.	Changes to various provisions pertaining to the Dispute Resolution provision have resulted in the Architect assuming <u>less responsibility</u> during the construction phase of a project.
10b	Q28	Dispute Resolution	Changes to AIA A201 provisions pertaining to the Dispute Resolution provision have increased the value of the Architect's performance of contract administration services during the construction phase of a project.	Changes to AIA A201 provisions pertaining to the Dispute Resolution provision have not increased the value of the Architect's performance of contract administration services during the construction phase of a project.	Single T-test	0.001 (3.79)	n/a	pg.17 / pg.6	The null hypothesis is rejected in favor of the alternative hypothesis.	Changes to the AIA A201 provision concerning the Dispute Resolution have <u>not increased</u> the value of the Architect's performance of contract administration services during the construction phase of a project.
10c	Q29	Dispute Resolution	With regard to the Dispute Resolution provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has <u>increased</u> in recent years.	With regard to the Dispute Resolution provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has <u>decreased</u> in recent years.	Single T-test	0.001 (3.78)	n/a	pg.17 / pg.7	The null hypothesis is rejected in favor of the alternative hypothesis.	With regard to the Dispute Resolution provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has <u>decreased</u> in recent years.

Survey Question	Survey Question's Sequential Order	Contract Provision	Null Hypothesis	Alternative Hypothesis	Statistical Analysis				Results	Conclusion
					Test	Parametric p-value (mean)	Non-parametric p-value (chi-square frequency)	Source: page # of App. D5 / D6		
11a	Q30	Claims for Extra Cost	Changes to various provisions pertaining to the Claims for Extra Cost provision have had <u>no effect</u> on the role of the Architect on a project during the construction phase of a project.	Changes to various provisions pertaining to the Claims for Extra Cost provision have had an effect of <u>less responsibility</u> on the role of the Architect during the construction phase of a project.	Chi-Square	n/a	0.001 (27 of 48 respondents chose the observed score = 3)	pg.15 & 16 / pg.8	The null hypothesis is rejected in favor of the alternative hypothesis.	Changes to various provisions pertaining to the Claims for Extra Cost provision have resulted in the Architect assuming <u>less responsibility</u> during the construction phase of a project.
11b	Q31	Claims for Extra Cost	Changes to AIA A201 provisions pertaining to the Claims for Extra Cost provision have increased the value of the Architect's performance of contract administration services during the construction phase of a project.	Changes to AIA A201 provisions pertaining to the Claims for Extra Cost provision have not <u>increased</u> the value of the Architect's performance of contract administration services during the construction phase of a project.	Single T-test	0.001 (3.81)	n/a	pg.17 / pg.9	The null hypothesis is rejected in favor of the alternative hypothesis.	Changes to the AIA A201 provision concerning the Claims for Extra Cost have <u>not increased</u> the value of the Architect's performance of contract administration services during the construction phase of a project.
11c	Q32	Claims for Extra Cost	With regard to the Claims for Extra Cost provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has <u>increased</u> in recent years.	With regard to the Claims for Extra Cost provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has <u>decreased</u> in recent years.	Single T-test	0.001 (3.71)	n/a	pg.17 / pg.10	The null hypothesis is rejected in favor of the alternative hypothesis.	With regard to the Claims for Extra Cost provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has <u>decreased</u> in recent years.

Survey Question	Survey Question's Sequential Order	Contract Provision	Null Hypothesis	Alternative Hypothesis	Statistical Analysis				Results	Conclusion
					Test	Parametric p-value (mean)	Non-parametric p-value (chi-square frequency)	Source: page # of App. D5 / D6		
12a	Q33	Shop Drawings	Changes to various provisions pertaining to the Shop Drawings provision have had <u>no effect</u> on the role of the Architect on a project during the construction phase of a project.	Changes to various provisions pertaining to the Shop Drawings provision have had an effect of <u>less responsibility</u> on the role of the Architect during the construction phase of a project.	Chi-Square	n/a	0.001 (32 of 48 respondents chose the observed score = 3)	pg.15 & 16 / pg. 11	The null hypothesis is rejected in favor of the alternative hypothesis.	Changes to various provisions pertaining to the Shop Drawings provision have resulted in the Architect assuming <u>less responsibility</u> during the construction phase of a project.
12b	Q34	Shop Drawings	Changes to AIA A201 provisions pertaining to the Shop Drawings provision have increased the value of the Architect's performance of contract administration services during the construction phase of a project.	Changes to AIA A201 provisions pertaining to the Shop Drawings provision have not <u>increased</u> the value of the Architect's performance of contract administration services during the construction phase of a project.	Single T-test	0.001 (3.81)	n/a	pg.17 / pg.12	The null hypothesis is rejected in favor of the alternative hypothesis.	Changes to the AIA A201 provision concerning the Shop Drawings have <u>not increased</u> the value of the Architect's performance of contract administration services during the construction phase of a project.
12c	Q35	Shop Drawings	With regard to the Shop Drawings provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has <u>increased</u> in recent years.	With regard to the Shop Drawings provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has <u>decreased</u> in recent years.	Single T-test	0.001 (3.69)	n/a	pg.17 / pg.13	The null hypothesis is rejected in favor of the alternative hypothesis.	With regard to the Shop Drawings provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has <u>decreased</u> in recent years.

Survey Question	Survey Question's Sequential Order	Contract Provision	Null Hypothesis	Alternative Hypothesis	Statistical Analysis				Results	Conclusion
					Test	Parametric p-value (mean)	Non-parametric p-value (chi-square frequency)	Source: page # of App. D5 / D6		
13a	Q36	Changes in the Work	Changes to various provisions pertaining to the Changes in the Work provision have had <u>no effect</u> on the role of the Architect on a project during the construction phase of a project.	Changes to various provisions pertaining to the Changes in the Work provision have had an effect of <u>less responsibility</u> on the role of the Architect during the construction phase of a project.	Chi-Square	n/a	0.001 (26 of 48 respondents chose the observed score = 3)	pg.16 / pg.14	The null hypothesis is rejected in favor of the alternative hypothesis.	Changes to various provisions pertaining to the Changes in the Work provision have resulted in the Architect assuming <u>less responsibility</u> during the construction phase of a project.
13b	Q37	Changes in the Work	Changes to AIA A201 provisions pertaining to the Changes in the Work provision have increased the value of the Architect's performance of contract administration services during the construction phase of a project.	Changes to AIA A201 provisions pertaining to the Changes in the Work provision have not <u>increased</u> the value of the Architect's performance of contract administration services during the construction phase of a project.	Single T-test	0.001 (3.75)	n/a	pg.17 / pg.15	The null hypothesis is rejected in favor of the alternative hypothesis.	Changes to the AIA A201 provision concerning the Changes in the Work have <u>not increased</u> the value of the Architect's performance of contract administration services during the construction phase of a project.
13c	Q38	Changes in the Work	With regard to the Changes in the Work provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has <u>increased</u> in recent years.	With regard to the Changes in the Work provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has <u>decreased</u> in recent years.	Single T-test	0.001 (3.75)	n/a	pg.17 / pg.16	The null hypothesis is rejected in favor of the alternative hypothesis.	With regard to the Changes in the Work provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has <u>decreased</u> in recent years.

6.7.3 STEP 3 - FINDINGS OF PHASE III

The research question addressed in Phase III of the three-phase investigation for this dissertation is:

Have changes in the function of the design professional, as a result of changes in AIA A201, impacted owners' perception of the value-added benefit by the design professional during the construction phase and the contract administration.

The objective of Phase III was:

To ascertain the impact that changes to the functions performed by the design professional have had or not had on owners' perception of the value-added benefit by the design professional during the construction phase and contract administration.

The hypothesis of Phase III is that:

Changes in the function performed by the architect/design professional during construction and contract administration are perceived by owners as having significantly affected the value-added benefit by the architect/design professional during the construction phase and contract administration.

There was a 24% response rate (detailed in Chapter 6.5.3) resulting from the three-part self-administered mail survey questionnaire, which was used to investigate Phase III of the dissertation, described in Chapter 6.5.1. From the results of the statistical analysis conducted in Step 2 on Part III of Phase III reported in Chapter 6.6.2, the resulting final findings were summarized and presented here:

Based on the forty-eight (48) qualified respondents, Part I of the questionnaire established the specified target population of qualified respondents (either owner or owners' representatives) in the industry, who are affiliated with a variety of industry professional organizations. Furthermore,

- 71% of the respondents spend more than fifty-percent of their time working as an owner or owner's representative;
- All of the respondents have more than 10 years of experience;
- Approximately 73% of the respondents have over 20 years of experience;
- 90% of the respondents are familiar with the AIA A201; and
- 60% of the respondents use the AIA contract documents.

Furthermore, Part II of the Phase III survey questionnaire determined that:

- 77% of the qualified respondents have utilized construction oversight or construction management services of an architect during the construction phase of projects over the last 10 years;
- The majority of the respondents (65%) utilize services of the architect on over fifty percent (50%) of their project.

In utilizing the architect during the construction phase of a project, the respondents indicated, on a scale of "not at all important" (1) to "extremely important" (5), the relevance of the following services:

- Timely review and response to inquires concerning Contract Documents – perception leans towards "extremely important."
- Interpret and decide matters concerning the performance of the Owner and Contractor - perception leans towards "not at all important."

- Render decisions on claims, disputes, or other matters in question between the Owner and Contractor - perception leans towards “not at all important.”
- Visit the project site at intervals appropriate to the stage of work in effort to guard the Owner against defects and deficiencies in the contracted work - perception leans towards “extremely important.”
- Reject work that does not conform to the Contract Documents - perception leans towards “extremely important.”
- Conduct inspections to determine the dates of Substantial Completion and Final Completion, and issue a final Certificate of Payment – perception leans towards “extremely important.”
- Review, approve, or take appropriate action upon Contractor’s submittals, i.e. shop drawings - perception leans towards “extremely important.”
- Authorize minor changes in the work, not involving adjustment in the contract time or contract sum - perception leans towards “not at all important.”

As the central part of the investigation and the final phase of this research, Part III of the Phase III survey questionnaire gained insight into the owners and owners’ representatives’ opinions regarding the effect that the change of key provisions in AIA A201 from 1951 to 1997 have had on the function of the architect and the value of the architect’s services, the findings are as follows:

- **Role of the Architect**

Changes to various provisions pertaining to the Role of the Architect provision have resulted in the Architect assuming less responsibility during the construction phase of a project.

Changes to the AIA A201 provision concerning the Role of the Architect have not increased the value of the Architect’s performance of contract administration services during the construction phase of a project.

With regard to the Role of the Architect provision, Owners or Owners’ representatives perceive the value of the Architect’s contract administration services during construction have decreased in recent years.

- **Dispute Resolution**

Changes to various provisions pertaining to the Dispute Resolution provision have resulted in the Architect assuming less responsibility during the construction phase of a project.

Changes to the AIA A201 provision concerning the Dispute Resolution have not increased the value of the Architect’s performance of contract administration services during the construction phase of a project.

With regard to the Dispute Resolution provision, Owners or Owners’ representatives perceive the value of the Architect’s contract administration services during construction have decreased in recent years.

- **Claims for Extra Cost**

Changes to various provisions pertaining to the Claims for Extra Cost provision have resulted in the Architect assuming less responsibility during the construction phase of a project.

Changes to the AIA A201 provision concerning the Claims for Extra Cost have not increased the value of the Architect’s performance of contract administration services during the construction phase of a project.

With regard to the Claims for Extra Cost provision, Owners or Owners’ representatives perceive the value of the Architect’s contract administration services during construction have decreased in recent years.

- **Shop Drawings**

Changes to various provisions pertaining to the Shop Drawings provision have resulted in the Architect assuming less responsibility during the construction phase of a project.

Changes to the AIA A201 provision concerning the Shop Drawings have not increased the value of the Architect's performance of contract administration services during the construction phase of a project.

With regard to the Shop Drawings provision, Owners or Owners' representatives perceive the value of the Architect's contract administration services during construction have decreased in recent years.

- **Changes in the Work**

Changes to various provisions pertaining to the Changes in the Work provision have resulted in the Architect assuming less responsibility during the construction phase of a project.

Changes to the AIA A201 provision concerning the Changes in the Work have not increased the value of the Architect's performance of contract administration services during the construction phase of a project.

With regard to the Changes in the Work provision, Owners or Owners' representatives perceive the value of the Architect's contract administration services during construction have decreased in recent years.

Chapter 6.7 concludes the final analysis of this research study by investigating the qualified respondents' perception of the effect that the change of key provisions in AIA A201 from 1951 to 1997 have had on the function of the architect and the value of the architect's services during the construction phase and contract administration. Figure 76 expands on Figure 41 presented in Chapter 5.6.3 on the progression of the key contract provisions investigated in this research study. In conclusion, Chapter 7 provides a summary of this research study. It summarizes the results of the three-phase methodology executed for this dissertation and discusses the conclusions.

PHASE I	PHASE II		PHASE III	FINDINGS OF PHASE III		
AIA A201 Contract Provision	Diminished over time	Material effect on the function of the architect	<i>AIA A201 Contract Provision further investigated in Chapter 6</i>	Changes to various AIA A201 contract provisions have resulted in the Architect assuming <i>less responsibility/more responsibility/no effect</i> during the construction phase of a project.	Changes to various AIA A201 contract provisions have <i>increased/decreased/not changed</i> the value-added benefit of the Architect's performance of contract administration services during the construction phase of a project.	With regards to various AIA A201 provisions, Owners or Owners' Representatives perceive the value-added benefit of the Architect's contract administration services during construction have <i>increased/decreased/not changed</i> .
Role of the Architect	✓	✓	Role of the Architect	Less responsibility	Not increased	Decreased
Dispute Resolution	✓	✓	Dispute Resolution	Less responsibility	Not increased	Decreased
Ownership of Documents	✓	✗	Drop	n/a	n/a	n/a
Final Payment	✗	✗	Drop	n/a	n/a	n/a
Claims for Extra Cost	✗	✓	Claims for Extra Cost	Less responsibility	Not increased	Decreased
Shop Drawings	✓	✓	Shop Drawings	Less responsibility	Not increased	Decreased
Changes in the Work	✗	✓	Changes in the Work	Less responsibility	Not increased	Decreased

Figure 76: Expanded Matrix of the Progression of the Investigation of the Key Contract Provisions focused on in this Research Study

7 SUMMARY, CONCLUSIONS AND CONTRIBUTIONS

This chapter provides a summary of this research study. It summarizes the results of the three-phase methodology executed for this dissertation. Also, this chapter evaluates the answers to the research questions and accomplished objectives in the investigation of the hypotheses. Finally, this chapter concludes the dissertation with commentary on the contribution of the research study to the body of knowledge.

7.1 INTRODUCTION

In the construction industry, there is the common perception that the changes in the general conditions of contract are increasingly protecting a specific constituency by loading risk on a single party versus protecting the process by which successful construction projects can be achieved. An underlining basis for this research was that the effectiveness of contracts (present and future) in achieving their objectives and/or intent must be dependent on the primary mission of the contractual parties' ability to manage and control changes, than the secondary mission of providing a defense to the potential liability of the contracting parties. Innovations and reform efforts to the construction phase, as manifested through contracts, have an effect (positive or negative) on the dynamics of contractual relationships. Incremental changes to the rules of the game have some bearing on the dynamics of the contractual relationships. At the same time, the contractual relationships have some bearing on the success of a project. Improving project management should be another primary objective of contract revisions and additions, not simply the by-product of ever-evolving contracts and their provisions.

The purpose of this dissertation study was to advance the understanding of change in key provisions in the AIA A201 and the impact this change has had on the owner's perception of the value-added benefit by the design professional during the construction phase: is the construction industry developing better contracts and improving contractual relationships (particularly, between the owner and design professional); is the construction industry improving the way business is done in construction practice; or, is the construction industry simply just developing bigger and more complex monstrosities of documents. There needs to be an understanding of the process used to make changes and the impact of those changes in the general conditions of contracts before one can make effective changes to improve contractual and working relationships during construction.

This research study investigated the changes, which have occurred in the evolution of the general conditions of AIA A201; and, how the changes affect the function of the design professional, leading to the current owner-perceived value-added benefit of the design professional during the construction phase. This study investigated the AIA A201 to understand the evolutionary process from one edition to the next by describing the changes in key provisions, and describing the effect that change has had on the function performed by the design professional. Ultimately, the research led to an enhanced knowledge of the owner-perceived value-added benefit by the design professional during the construction phase. This dissertation study conducted the investigation in an organized three-phase methodology:

Phase I – Identification of Key Provisions of AIA A201

Phase II - An Investigation of the Function of the Architect/Design Professional

Phase III - Owner's Perception of the Value-added benefit by the Architect/Design Professional

This chapter summarizes each phase of the three-phase methodology executed for this dissertation. Finally, this chapter concludes the dissertation with commentary on the contribution of the research study.

7.2 SUMMARY OF PHASE I: IDENTIFICATION OF KEY PROVISIONS OF AIA A201

The question addressed in Phase I was: What key provisions have had substantive changes over time that had an effect on the construction phase and the contract administration. The hypothesis of Phase I was change has occurred in key provisions relating to the construction phase and contract administration in the AIA A201 contract document from 1951 to 1997. The objective of Phase I set out to identify key provisions of construction contract documents and the respective substantive changes to each provision that may have had an effect on the function of the design professional during the construction phase and contract administration.

To accomplish Phase I, desk research was implemented. The desk research was conducted on archival materials, literature, and expert opinions of the AIA 201 contract documents, restrictively those cases and practices that have pioneered the changes in the evolution of AIA A201. From the desk research, which included the AIA contract documents, literature, journals, and other materials written about the AIA A201, the development of a preliminary list of contract provisions that were noteworthy and/or exhibit incremental changes is provided below:

- Changes in the Work
- Role of Architect
- Dispute Resolution
- Ownership of the Documents
- Shop Drawings
- Liens
- Final Payment
- Termination by Owner
- Claims for Extra Cost
- Clean up of site/Hazardous material
- Construction Bonds
- Construction Claims for Damages

Also, in conducting the desk research, the provisions were tracked by the simple measurement of change in the size of the contractual paragraph (e.g. number of words in the provision). In Chapter 4.6, Figure 9 and Figure 10, respectively, illustrate a word-count matrix and the graphical representation. At the same time, an evaluation of the process of *change* (e.g. revisions from one edition to the next edition of the AIA general conditions) was conducted in depth, where change has been significant and has had potential impact on the contractual parties as determined from the desk research as described above. Provisions were further examined against the following descriptions, as discussed in Chapter 2.8.2: introduction of a new provision, revision of a provision for substance, deletion of a provision, or revision of a provision for clarity.

After continued investigation and discussions with industry participants and AIA A201 experts for their accounts and experiences, certain provisions were discarded from further investigation. The product of the desk

research of Phase I successfully resulted in a list of key provisions and their respective significant changes, recounted in Chapter 4. Subsequently, the results of the desk research also provided for the input material to be used in the implementation of Phase II of the three-phase research methodology, detailed in Chapter 5.

As intended, Phase I of the research identified the key contract provisions, which demonstrated significant change and influence on the function of the architect/design professional performed in contract administration during construction. The completion of Phase I resulted in the list of seven (7) key provisions shown below, which were subsequently used for the input for the implementation of Phase II of the three-phase methodology:

1. Role of the Architect
2. Dispute Resolution
3. Ownership of Documents
4. Final Payment
5. Claims for Extra Cost
6. Shop Drawings
7. Changes in the Work

7.3 SUMMARY OF PHASE II: AN INVESTIGATION OF THE FUNCTION OF THE ARCHITECT/DESIGN PROFESSIONAL

The question addressed in Phase II was have changes in the key provisions of general conditions affected the function of the design professional during the construction phase and the contract administration. The hypothesis of Phase II was change has occurred in key provisions relating to the construction phase and contract administration in the AIA A201 contract document from 1951 to 1997; and changes made to key provisions of AIA A201 have had a material effect on the function performed by the architect/design professional during the construction phase and contract administration. The objective of Phase II set out to examine the effect change has had or not had on the function of the design professional's degree of participation required to properly and successfully perform the design professional's assumed duties and responsibilities during the construction phase and contract administration.

To accomplish Phase II, the detailed procedures, known as "The Tailored Design Method," was implemented to contact and engage the survey research participants. The self-administered survey of Phase II consisted of a line of questioning within the following seven (7) contract provisions, which were ascertained from the implementation of Phase I, as reported in Chapter 4:

1. Role of the Architect
2. Dispute Resolution
3. Ownership of Documents
4. Final Payment
5. Claims for Extra Cost
6. Shop Drawings
7. Changes in the Work

The analysis of Phase II was a three-step process in which each of the seven (7) contract provisions were examined, as described in Chapter 3.3.4.2. The aforementioned three-step process was as follows:

Step 1 – Preliminary Analysis: the survey responses of Part III were tallied, tabulated, and reviewed for establishing preliminary findings.

Step 2 – Statistical Analysis: from the preliminary findings established from Step 1, hypotheses were defined and the respective statistical tests were conducted to confirm or deny the preliminary findings.

Step 3 – Findings: from the results of the statistical analysis conducted in Step 2, the resulting final findings are summarized.

Herewith are the final survey findings resulting from the statistical analyses:

- **Role of the Architect**

In the provision of 1951, the contractual role of the architect in the **Role of the Architect** provision was a primary lead role (active); then, in the provision of 1997, the contractual role was viewed more as a reviewer (passive). The role of the architect in the AIA A201 Role of the Architect provision diminished from 1951 to 1997.

From 1951 to 1997, change in the **Role of the Architect** provision has had a material effect on the construction phase, contract administration, and on the function of the architect.

- **Dispute Resolution**

In the provision of 1951, the contractual role of the architect in the **Dispute Resolution** provision was a primary lead role (active); then, in the provision of 1997, the contractual role was viewed more as a supervisory role (neutral/mid). The role of the architect in the AIA A201 Dispute Resolution provision diminished from 1951 to 1997.

From 1951 to 1997, change in the **Dispute Resolution** provision has had a material effect on the construction phase, contract administration, and on the function of the architect.

- **Ownership of the Documents**

In the provision of 1951, the contractual role of the architect in the **Ownership of the Documents** provision was a primary lead role (active); then, in the provision of 1997, the contractual role was also viewed as a primary lead role (active). (At the same time, the statistical analysis supports the preliminary findings: The change in the provision from 1951 to 1997 has had a decrease effect in participation from the architect's function during construction. In 1951, the architect's degree of participation was perceived only as an active role. From 1951 to 1997, the change in the provision has led to the active role of the architect slightly decreasing and an increasingly passive degree of participation, which was statistically significant.) Thus, the role of the architect in the AIA A201 Ownership of the Documents provision diminished from 1951 to 1997.

From 1951 to 1997, change in the **Ownership of Documents** provision has **not** had a material effect on the construction phase and contract administration. And, the **Ownership of Documents** provision from 1951 to 1997 has **not** had a material effect on the function of the architect.

- **Final Payment**

In the provision of 1966, the contractual role of the architect in the **Final Payment** provision was a quasi-judicial role (active); then, in the provision of 1997, the contractual role was also viewed to a quasi-judicial role (active). (At the same time, the statistical analysis does not support the preliminary findings: The change in the provision from 1966 to 1997 has created a “slight” decrease in participation from the architect’s function during the construction phase. In the 1966 provision, the architect’s degree of active participation was slightly greater than was viewed in the 1997 provision. After review and interpretation of the complete statistical results, the slight difference is not statistically significant.) Thus, the role of the architect in the AIA A201 Final Payment provision did **not** diminish from 1966 to 1997.

From 1966 to 1997, change in the **Final Payment** provision has **not** had a material effect on the construction phase and contract administration; and, the **Final Payment** provision from 1966 to 1997 has **not** had a material effect on the function of the architect.

- **Claims for Extra Cost**

In the provision of 1951, the contractual role of the architect in the **Claims for Extra Cost** provision was a primary lead role (active); then, in the provision of 1997, the contractual role was also viewed as a primary lead role (active). (At the same time, the statistical analysis does not support the preliminary findings: The change in the provision from 1951 to 1997 has created a “slight” decrease in participation from the architect’s function during the construction phase. In the 1951 provision, the architect’s degree of active participation was slightly greater than was viewed in the 1997 provision. After review and interpretation of the complete statistical results, the slight difference is not statistically significant.) Thus, the role of the architect in the AIA A201 Claims for Extra Cost provision did **not** diminish from 1966 to 1997.

However, from 1951 to 1997, the Claims for Extra Cost provision has had a material effect on the construction phase, contract administration, and on the function of the architect.

- **Shop Drawings**

In the provision of 1961, the contractual role of the architect in the **Shop Drawings** provision was a secondary support role (neutral/mid); then, in the provision of 1997, the contractual role was viewed more as a reviewer role (passive). The role of the architect in the AIA A201 Shop Drawings provision diminished from 1961 to 1997.

From 1961 to 1997, change in the **Shop Drawings** provision has had a material effect on the construction phase, contract administration, and on the function of the architect.

- **Changes in the Work**

In the provision of 1951, the contractual role of the architect in the **Changes in the Work** provision was a supervisory role (neutral/mid); then, in the provision of 1997, the contractual role was viewed to be a secondary support role (neutral/mid). (At the same time, the statistical analysis does not support the preliminary findings: The change in the provision from 1951 to 1997 has created a “slight” decrease in participation from the architect’s function during the construction phase. In the 1951 provision, the architect’s degree of active participation was slightly greater than was viewed in the 1997 provision. After review and interpretation of the complete statistical results, the slight difference is not statistically significant.) Thus, the role of the architect in the AIA A201 Claims for Extra Cost provision did **not** diminish from 1966 to 1997.

However, from 1951 to 1997, change in the **Changes in the Work** provision has had a material effect on the construction phase, contract administration, and on the function of the architect.

Despite the respondents’ varying opinions regarding the significance of the seven (7) investigated provisions and their respective effect on the contractual role of the architect’s function during construction and contract administration, changes have had an effect on the perception of the function of the design professional’s degree of participation to properly and successfully perform during the construction phase and contract administration. The research has shown that, in the opinions of experienced industry participants, changes made to the following key provisions of AIA A201 from 1951 to 1997 have diminished the role of the architect:

- Role of the Architect
- Dispute Resolution
- Ownership of the Documents
- Shop Drawings

Also, changes to the following key provisions have had a material effect on the construction phase, contract administration, and the function performed by the architect/design professional during construction:

- Role of the Architect
- Dispute Resolution
- Claims for Extra Cost
- Shop Drawings
- Changes in the Work

The five (5) key provisions shown above were subsequently used for the input for the implementation of Phase III of the three-phase methodology.

7.4 SUMMARY OF PHASE III: OWNER'S PERCEPTION OF THE VALUE-ADDED BENEFIT OF THE ARCHITECT/DESIGN PROFESSIONAL

The question addressed in Phase III was have changes in the function of the design professional, as a result of changes in AIA A201, impacted owners' perception of the value-added benefit by the design professional during the construction phase and the contract administration. The hypothesis of Phase III was changes in the function performed by the architect/design professional during construction and contract administration are perceived by owners as having significantly affected the value-added benefit by the architect/design professional during the construction phase and contract administration. The objective of Phase III set out to ascertain the impact that changes to the functions performed by the design professional have had or not had on owners' perception of the value-added benefit by the design professional during the construction phase and contract administration.

For the Phase III survey questionnaire, the Tailored Design Method" was implemented to access and engage the research participants. The primary inquiry of Phase III, regarding the owner's perception of the value-added benefit of the architect/design professionals, consists of questions regarding the five (5) key provisions determined directly from the results of Phase II of this dissertation, reported in Chapter 5.6.3. The five (5) areas of inquiry of Phase III were the following contract provisions:

1. Role of the Architect
2. Dispute Resolution
3. Claims for Extra Cost
4. Shop Drawings
5. Changes in the Work

The analysis of Phase III was a three-step process in which each of the five (5) contract provisions were examined. The aforementioned three-step process, described in Chapter 3.3.4.2, was as follows:

Step 1 – Preliminary Analysis: the survey responses of Part III of the self-administered survey of Phase III were tallied, tabulated, and reviewed for establishing preliminary findings.

Step 2 – Statistical Analysis: from the preliminary findings established from Step 1, hypotheses were defined and the respective statistical tests were conducted to confirm or deny the preliminary findings.

Step 3 – Findings: from the results of the statistical analysis conducted in Step 2, the resulting final findings are summarized.

Herewith are the survey findings of Phase III resulting from the statistical analyses:

- **Role of the Architect**

Changes to various provisions pertaining to the Role of the Architect provision have resulted in the Architect assuming less responsibility during the construction phase of a project.

Changes to the AIA A201 provision concerning the Role of the Architect have not increased the value of the Architect's performance of contract administration services during the construction phase of a project.

With regard to the Role of the Architect provision, Owners or Owners' representatives perceive the value of the Architect's contract administration services during construction have decreased in recent years.

- **Dispute Resolution**

Changes to various provisions pertaining to the Dispute Resolution provision have resulted in the Architect assuming less responsibility during the construction phase of a project.

Changes to the AIA A201 provision concerning the Dispute Resolution have not increased the value of the Architect's performance of contract administration services during the construction phase of a project.

With regard to the Dispute Resolution provision, Owners or Owners' representatives perceive the value of the Architect's contract administration services during construction have decreased in recent years.

- **Claims for Extra Cost**

Changes to various provisions pertaining to the Claims for Extra Cost provision have resulted in the Architect assuming less responsibility during the construction phase of a project.

Changes to the AIA A201 provision concerning the Claims for Extra Cost have not increased the value of the Architect's performance of contract administration services during the construction phase of a project.

With regard to the Claims for Extra Cost provision, Owners or Owners' representatives perceive the value of the Architect's contract administration services during construction have decreased in recent years.

- **Shop Drawings**

Changes to various provisions pertaining to the Shop Drawings provision have resulted in the Architect assuming less responsibility during the construction phase of a project.

Changes to the AIA A201 provision concerning the Shop Drawings have not increased the value of the Architect's performance of contract administration services during the construction phase of a project.

With regard to the Shop Drawings provision, Owners or Owners' representatives perceive the value of the Architect's contract administration services during construction have decreased in recent years.

- **Changes in the Work**

Changes to various provisions pertaining to the Changes in the Work provision have resulted in the Architect assuming less responsibility during the construction phase of a project.

Changes to the AIA A201 provision concerning the Changes in the Work have not increased the value of the Architect's performance of contract administration services during the construction phase of a project.

With regard to the Changes in the Work provision, Owners or Owners' representatives perceive the value of the Architect's contract administration services during construction have decreased in recent years.

7.5 DIAGRAMS OF OVERALL RESEARCH INVESTIGATION

The three-phase study of this dissertation research set out to advance the understanding of change in the AIA A201 and the impact change has had on the value-added benefit of the design professional. In Chapter 1.6, Figure 2 illustrated the connection between the research variables and hypotheses, linking the principle research questions, while providing the overall framework of the dissertation study. The following figures are the like-diagrams of the research efforts as set out and full-filled for each of the investigated contract provisions.

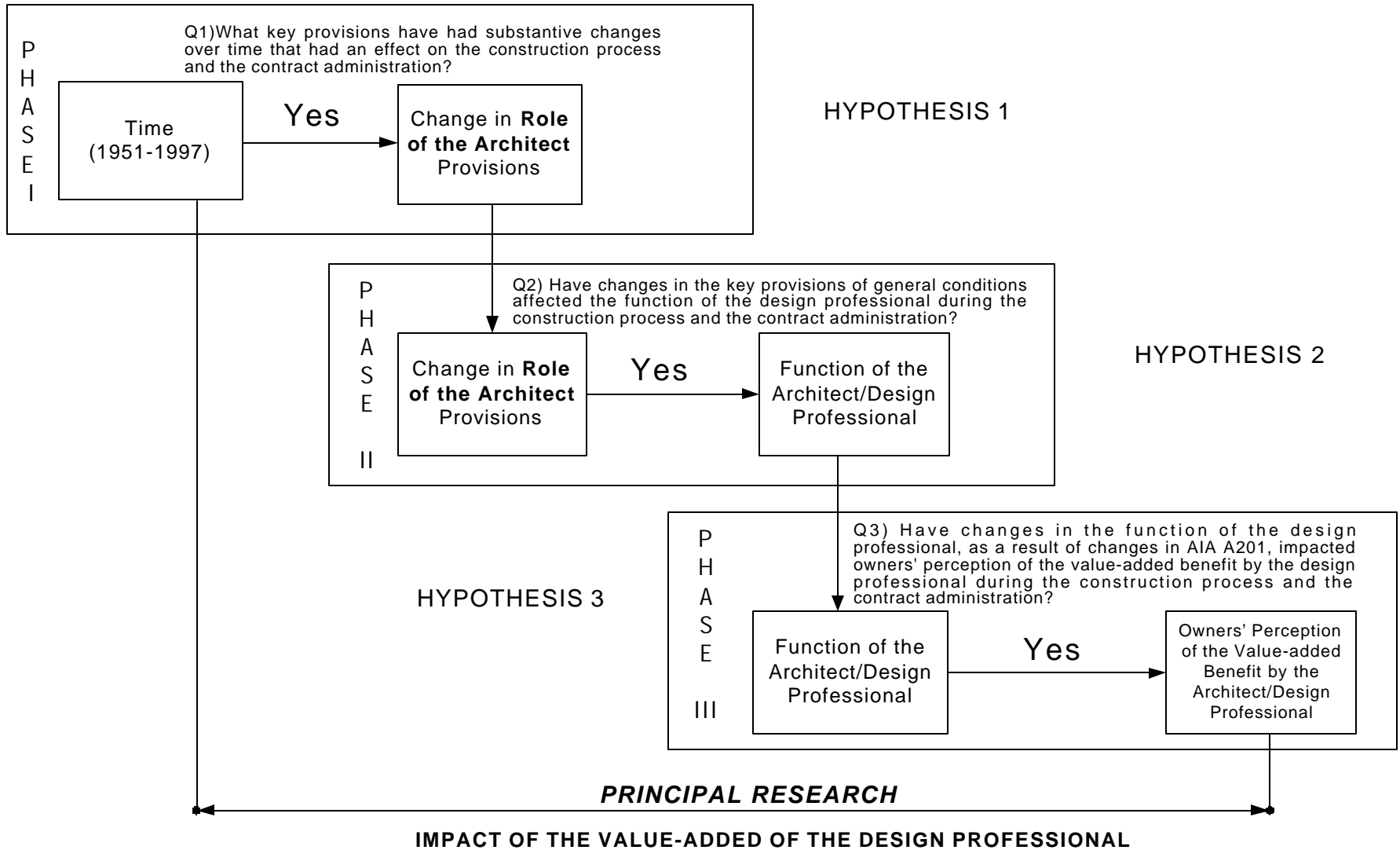


Figure 77: Change in Role of the Architect Provisions Principal Research Framework

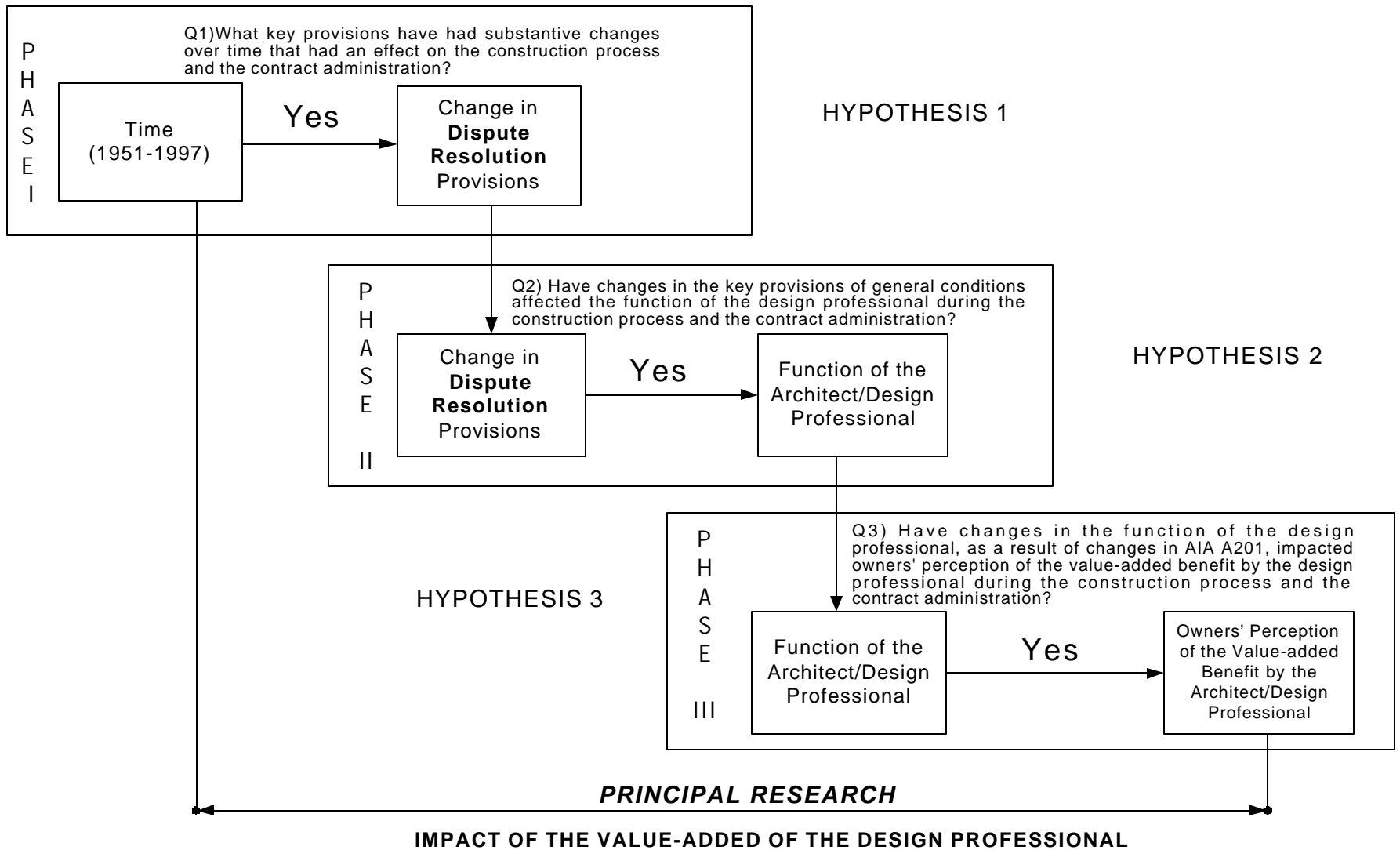


Figure 78: Change in **Dispute Resolution** Provisions Principal Research Framework

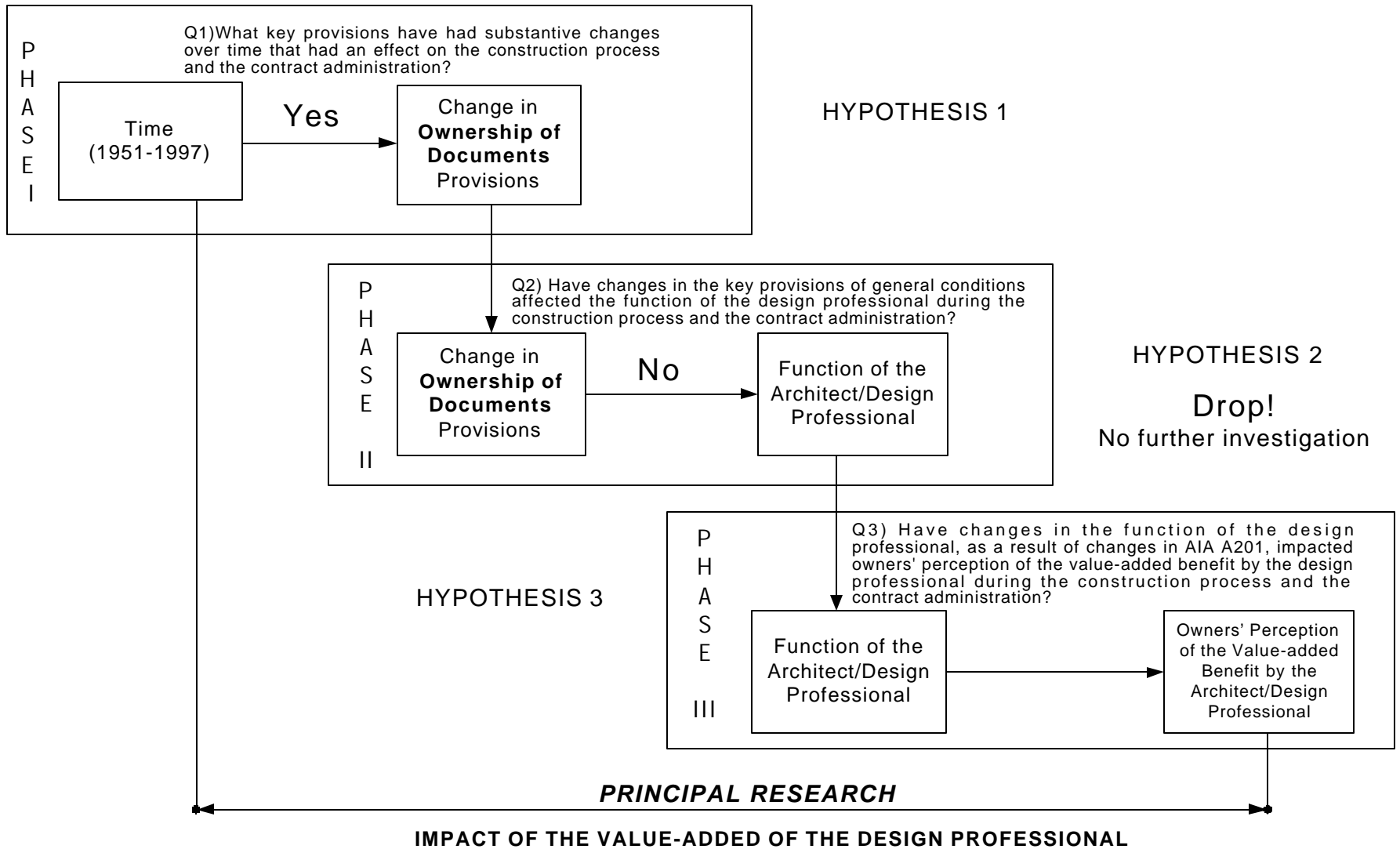


Figure 79: Change in **Ownership of Documents** Provisions Principal Research Framework

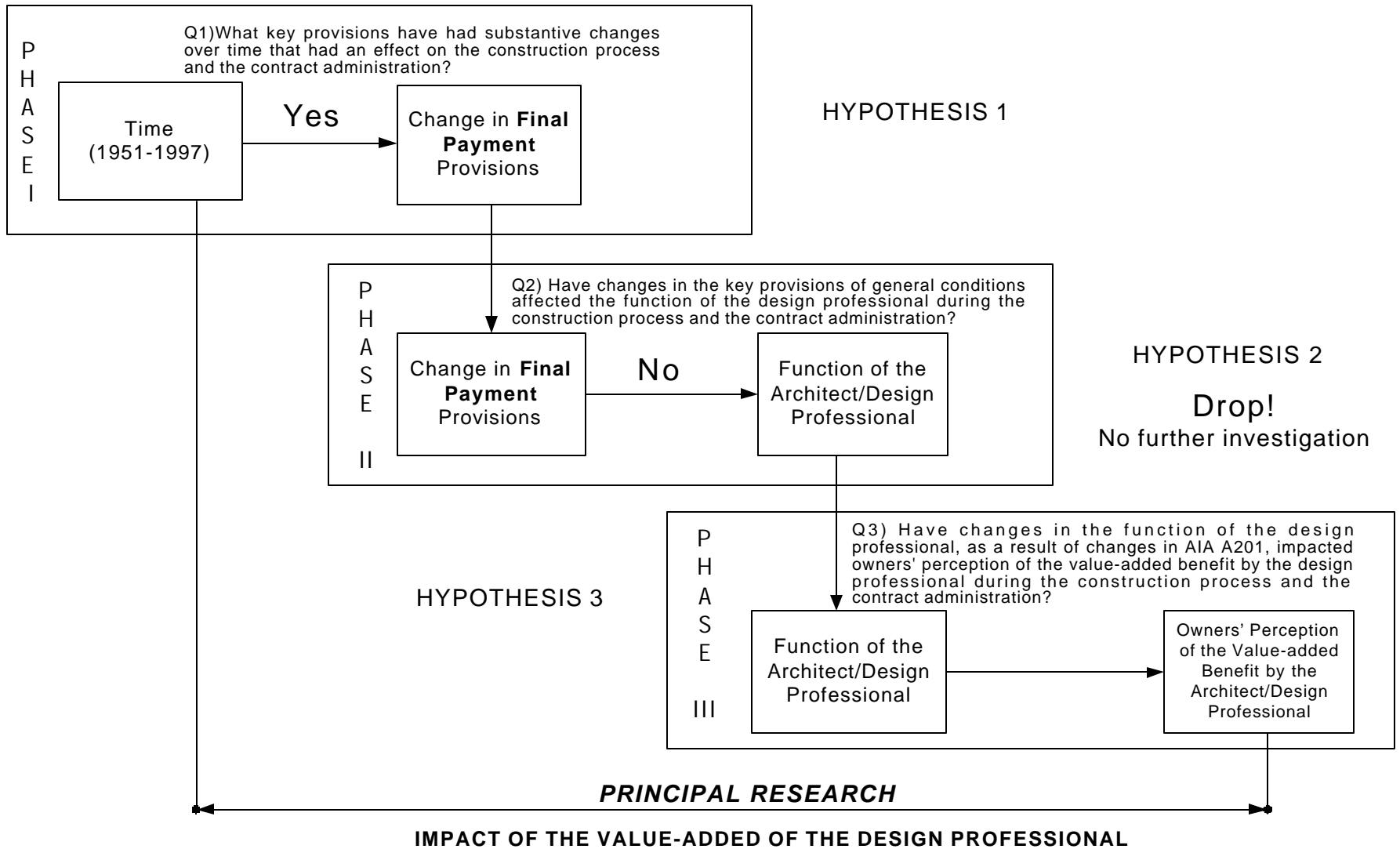


Figure 80: Change in **Final Payment** Provisions Principal Research Framework

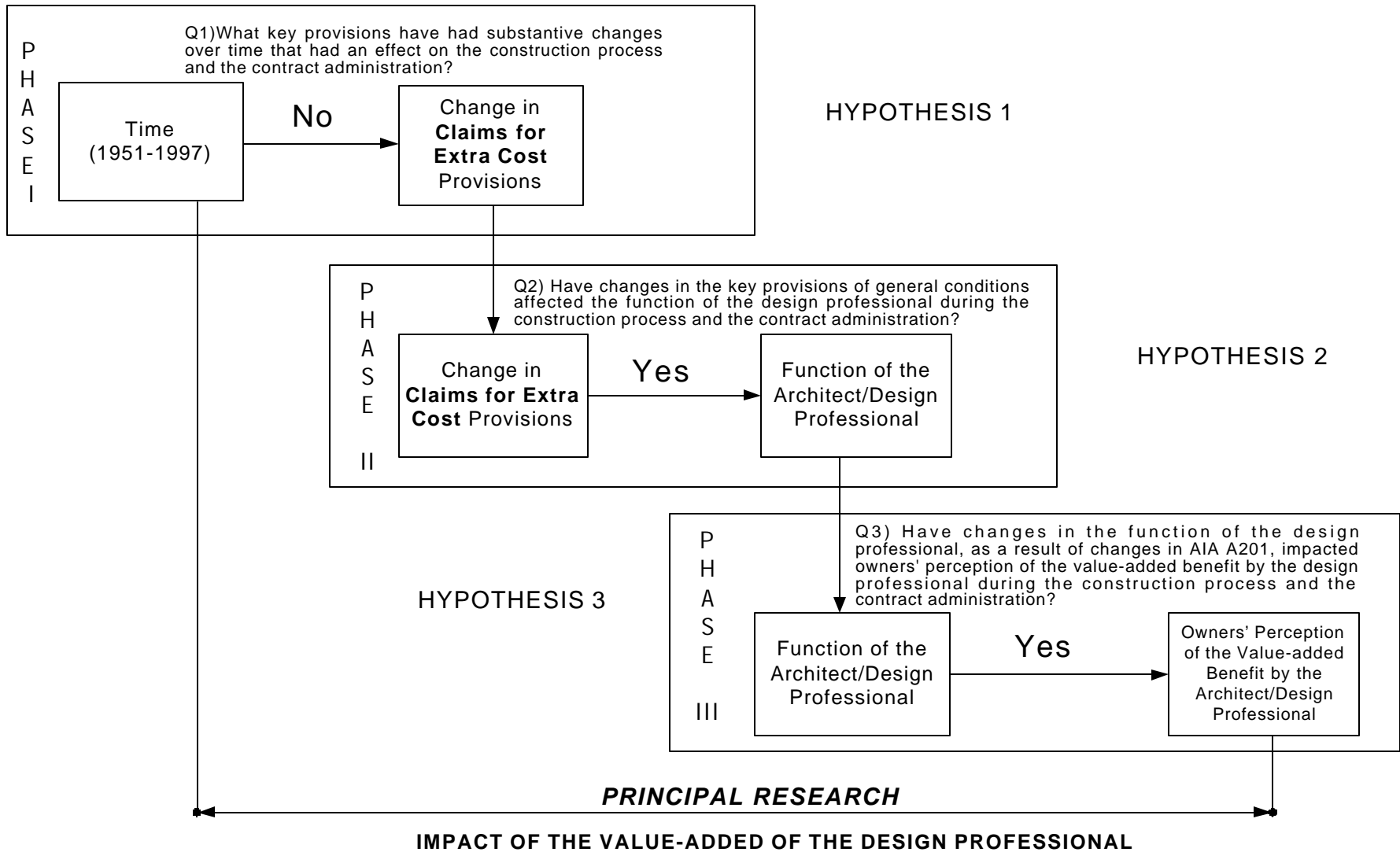


Figure 81: Change in Claims for Extra Cost Provisions Principal Research Framework

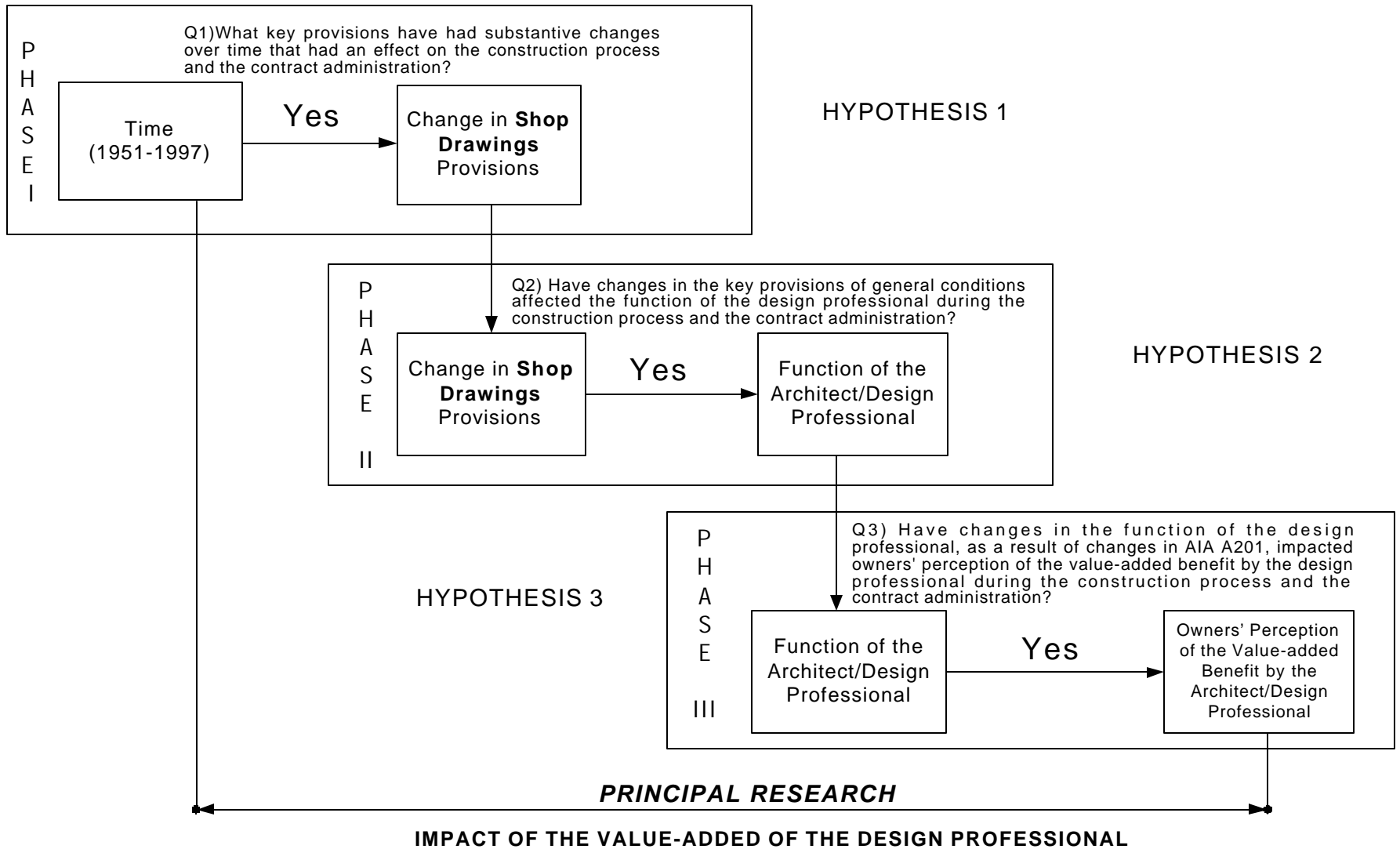


Figure 82: Change in Shop Drawings Provisions Principal Research Framework

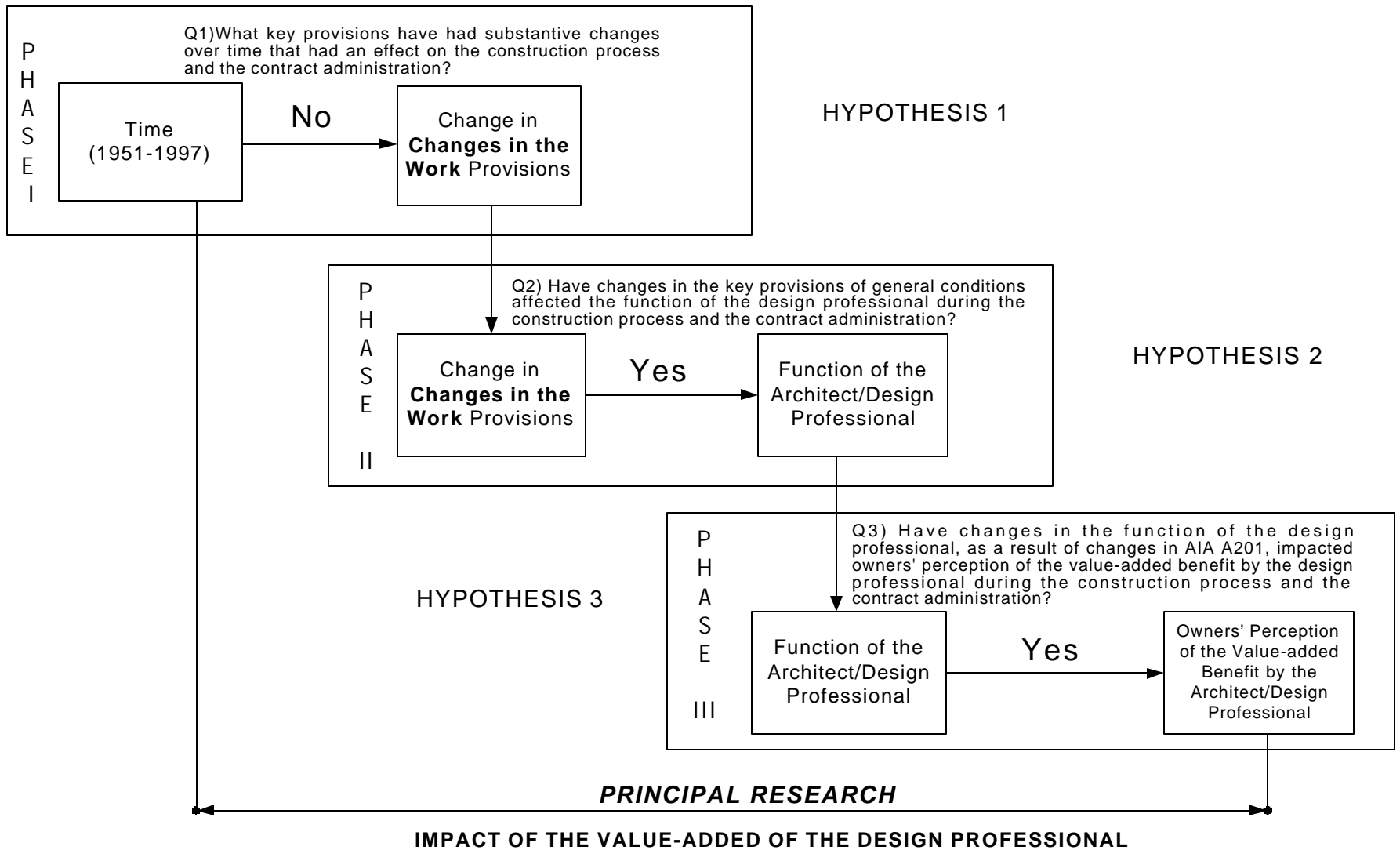


Figure 83: Change in **Changes in the Work Provisions** Principal Research Framework

7.6 CONCLUSIONS AND CONTRIBUTIONS

In the construction industry, the trichotomy is commonly accepted to be the contractual relationships of the owner, contractor, and architect/design professional. “The first and foremost source of the rules governing the interactions of participants is the contracts into which they voluntarily enter.” (Bartholomew 1998) The general conditions of contract play a very important role in the dynamics of the construction phase. Innovations and reform efforts to the construction phase, as manifested through general conditions of contract, like the AIA A201, have an effect on the dynamics of contractual relationships. The purpose and expectations of the revisions of the contract are not always clearly defined in literature or in practice. Oftentimes, there are conflicts between the parties’ interpretation of the standard contract and between the required administrative practices and that, which is necessary for a successful project. There is the common perception that the changes in the general conditions are increasingly protecting a specific constituency by loading risk on one party versus protecting the process by which successful construction projects can be achieved.

The three-phase study of this dissertation research set out to advance the understanding of change in the AIA A201 and the impact change has had on the perception of the value-added benefit of the design professional. The contributions to the body of knowledge resulting from this study are:

- Changes to various provisions pertaining to the key provisions have resulted in the Architect assuming less responsibility during the construction phase of a project.
- Changes to the AIA A201 provision concerning the key provisions have not increased the value of the Architect’s performance of contract administration services during the construction phase of a project.
- With regard to the key provisions, Owners or Owners’ representatives perceive the value of the Architect’s contract administration services during construction have decreased in recent years.

In Phase I, this research identified the key contract provisions, which influence the function of the design professional performed in contract administration during construction. Subsequently, in Phase II, the researcher used for the research sample a convenient sample of 75 industry professionals: architects/engineers, general contractors/construction managers, and legal professionals. The effect that change has had on the function performed by the design professional was investigated. Ultimately, in Phase III, the sample population was a convenient sample of the executive directors, board of directors, officers, and associate members of the organizations, who were only owners and owners’ representatives: AIA, AOD, COAA, CURT, and an organization’s distribution list for an annual survey of only owners and owners’ representatives. The research led to an enhanced knowledge of the owner-perceived value-added benefit by the design professional during the construction phase, as resulted from Phase III.

This investigation identified that change exists in key provisions over time and that change may have influence on the function performed by the design professional (such as an architect) during construction and contract administration. Concurrently, the respective substantive changes to each provision that may have had an effect on the function of the design professional were identified and these key provisions were thus studied further. Then, whether or not changes made to key provisions of AIA A201 have had a material effect on the

function performed by the architect/design professional during the construction phase and contract administration was examined. In addition, the importance of certain functions performed by the Architect was gauged.

When an owner utilizes construction oversight or construction management services by an Architect during the construction phase of a project, owner satisfaction is gauged on the active role of the design professional in review, advise, inspection, site visits, and in taking appropriate action in the best interest of the owner. The impact that changes to the function that the design professional performs has had or not had on owners' perception of the value-added benefit by the design professional during the construction phase and contract administration was the ultimate findings. Overall, owners and owners' representatives believe that the changes specific provisions from 1951 to 1997 have resulted in the Architect assuming less responsibility during the construction phase. In addition, owners and owners' representatives perceive that changes to the AIA A201 provisions have not increased the value of the Architect's performance of contract administration services during construction. At the same time, owners and owners' representatives indicate that in recent years, changes to the AIA A201 have effected the value of the Architect's contract administration services during the construction phase to decrease. This research validated the construction industry's general anecdote that the role of the design professional is diminishing and the design professional's functions on a construction project are decreasing. Furthermore, this research qualified the significant impact that the general conditions of contract have on the role and functions performed by the design professional.

The contributions of this study may foster a paradigm shift and a new understanding of the contract as a management tool. The enlightenment of this dissertation could assist the authors of future contracts and those who draft revisions to existing construction contracts and general provisions in their understanding of how incremental changes may have on the owner-perception of the value-added benefit of the function of the design professional. Before one can make effective changes to improve contractual and working relationships during construction, the change must be identified for the purpose of supporting the industry's efforts to reduce adversarial relations, balance risk, and control the schedule and cost, impact the contractual relationships and the value-added benefit of the contractual parties. The practical use of the AIA A201 and its future editions has an influence on improved performance and better working relationships. This dissertation research successfully provided an understanding of the process used and the impact of change in the general conditions of contracts. As such, this understanding illuminated the necessary considerations of change and its impacts on the future development of contracts and their revisions throughout its evolution, not to just create bigger documents, but better documents.

Owners have moved away from using the AIA A201, which is ever-evolving and towards drafting their own general conditions of contract. A motivation for this research was the idea that the general conditions of contract, being the rules of the game of the construction phase, provide a major player in the game (the architect/design professional) a great deal of responsibility, and increasing rights and authority, but by design (or impulse) also provide the architect little and decreasing accountability and risks. This decline in status and participation is to the detriment of the owner, the ultimate benefactor and beneficiary of a constructed project. The detriment arises from a gap in expectation, i.e. architects/design professionals market to owners to provide services to be an owner's representative/agent during the construction phase. Keeping in mind that the value of an architect/design

professional's services during the construction phase is subjective to the needs of each owner, the decreasing accountability to the owner as perpetuated in standard general conditions, like AIA A201, results in owners not exactly getting what they expected or comply with their needs.

Each participant in the construction trichotomy plays a key role in the success of a project. Over time, building design and construction requirements have become more detailed and costly in terms of dollars, time, liability, and risks. The shared goal of the design professional, general contractor, and owner is to work in tandem to provide a quality project within budget, on time, and under a safe working environment. This study was not set out to undermine the architect/design professional. The knowledge created by linking incremental changes to the general conditions of contract and value-added benefit of the design professional will hopefully cause authors of contracts when revising, amending, omitting, and/or adding new contract provisions, regardless of reasons or cause, to think further than a knee-jerk reaction to an immediate liability. How we do business and how we accomplish the work are significant factors when considering the cumulative impact of the incremental changes, which are being instituted in the general conditions of contract.

This research intended to build an understanding of the negative impact of well-intended incremental changes that have created a reversal of negative perceptions. By its nature, the general conditions of contract evolve from one edition to another. Improving project management should be one of the primary objectives of contract revisions and additions, not simply the by-products. As this research has validated, the changes in this evolutionary process have shown to have an affect on a contractual party's roles, rights, risks, accountability, and authority during the construction phase. In the course of the construction phase, the design professional's and contractor's goal may simply be to make a profit, where as the owner's goal may be to minimize cost and time of the project while maximizing the profit due to operations in the completed project. If a supportive management climate is established by the general conditions of contract during the construction phase (where the parties are more focused on the work, than survival), the other tools, i.e. schedules, estimates, and ADR mechanisms, can be used more effectively to achieve the individual goals of all contractual parties. But, in today's society, professional liability insurance for architects and other design professionals are increasingly high, as well as a rising number of lawsuits against architects and other design professionals alleging professional negligence or breach of contract. So, as society evolves into a more omnipresent litigious society, the general conditions of contract should not be just a legal document, but should be thought of and used as a management tool that sets the tone for contractual relationships and subsequent performance on construction projects, such that a win-win result for all contractual parties' goals will be actualized proportion to the success of a project to facilitate a quality project, constructed within budget, on time, and under a safe working environment.

The main conclusions ascertained in this research discovered adverse perceptions, but sincerely hope that this knowledge will bring greater awareness to reverse the trend and regain the rightful status and participation of the architect, at the same time, maintain an equity of contractual relationships. A series of micro-level incremental changes to the general conditions of contract have created negative perceptions on the managerial, strategic, and professional level of the construction phase and its participants. As demonstrated in this study, the construction industry cannot forget the big picture and consider the reasons for the micro-level changes, which have macro-level impacts during construction and contract administration on a project.

In the future, the industry would benefit from research that:

- Investigates if the design professional's role is decreasing during the construction phase of a project, what cost is the owner paying to fill the void and what is the owner's potential exposure. In other words, a cost/benefit analysis to justify exposure and/or the increase in fee for additional services by a design professional during the construction phase would be constructive.
- Examines whether there is a correlation between a design professional's fee and quality/quantity of services. That is, is there a gap between owner's expectation of service (what do they think they are paying for), design professionals' fees (how much do they cost), and the actual service provided (what are they getting). A benefit could be a contemporary fee structure matrix of fee, owner's services needed, and design professional's services provided.
- Lastly, investigates the rate at which claims have increased in parallel with the evolution of specific contract provisions. Maybe, there are common dominators in those contract provisions that have had an increasing number of claims in the past years or maybe, there is no common dominator and the rising number of claims is just a cultural norm.

EPILOGUE

All in all, the necessary considerations for change to provisions of general conditions of contract are efforts to create better documents, not to just create bigger documents. Through the three phases of this study, key contract provisions in the AIA A201 were identified, changes in the provisions were acknowledged and measured, and the ensuing perceptions of the owners on the value-added benefit of the architect/design professional during the construction phase were determined.

The contract for construction between the owner and the general contractor, like AIA A201, is the single most important document in the construction phase. It establishes the roles, rights and obligations of the most important parties of the construction project, the owner, the contractor, and the architect/design professional. While the owner's contract with the architect/design professional can be significant, the general contract between the owner and the contractor provides the framework for everything that happens during the construction phase. As the contract has evolved, one can only wonder just what is it that the architect/design professional [actually or supposedly] does on the site during the construction phase. The current contractual requirement that the owner designates a representative during the construction phase is an attempt to delineate clearly the architect/design professional's responsibility and who has authority to make decisions. As an agent of the owner during the construction phase, the role, responsibilities, authorities and accountabilities of the architect/design professional's services must be identified and defined.

Since the AIA family of documents is the most widely used baseline of contract documents in the industry, the composition and evolution of the documents are a reflection of the present and future of construction contract relationships. The AIA's cycle for reviewing and updating the documents accelerated from a 10-year cycle to a 5-year cycle, perhaps reflecting the dynamic nature of the construction industry. Some of the changes are relatively minor and simply serve to coordinate new concepts within the family of documents. In the current construction climate, even lawyers who do not use the AIA contracts will invariably select favorable provisions to incorporate in their own construction contract documents. Nevertheless, many of the changes to AIA contracts are major and reflect new approaches to legal consequences, insurable interests, design of projects, and contract administration. With changes to the standard contracts as demonstrated with the AIA A201, the industry is creating new project relationships, new contract administration requirements, new insurance needs, and a general change in many of the economics of the construction industry.

As illustrated in this dissertation, even single words can have profound effects on the parties [their perception and understanding]. Changes can often produce obscure business practices and produce inconsistent results. During the construction phase, the architect/ design professional, as the agent of the owner, typically conducts construction management or oversight. The three-phase study of this dissertation research set out to advance the understanding of change in the AIA A201 and the impact change has had on the perception of the value-added benefit of the design professional. This research concluded that changes to various provisions of AIA A201 have resulted in the architect assuming less responsibility during the construction phase of a project. Over time, changes to the AIA A201 provision have not increased the value of the architect's performance of contract administration services during the construction phase of a project. Ultimately, owners or owners' representatives perceive the value of the architect's contract administration services during construction have decreased in recent

years. Clarity and definition to the role of the architect/design professional is significant in an effort to reduce the potential exposure to risk of all the contractual parties. Therefore, modifications to contract provisions can substantially alter the architect/design professional's role in a construction project, which warrant careful consideration. Careful reading of these evolving documents by all contractual parties is necessary.

The general conditions of a contract, like AIA A201, are the main items that set the management climate during the construction phase. Innovation and reform efforts to improve relationships (i.e. partnering and dispute resolution boards) have helped the construction industry. The purpose and expectations of the revisions of the contract are not always clearly defined, thus the intent is lost. Sometimes, provisions are changed to improve contractual and working relationships. But the change must be identified for the purpose of supporting the industry's efforts to reduce adversarial relations, balance risk, control schedule and cost, and impact the contractual relationships and the value-added benefit of the contractual parties. If the intent is a supportive management climate that is established with good general conditions that are equitable to all parties rather than just protective of individual interests, then the changes for new editions of the contract will give rise to a fair distribution of roles, risks, rights, responsibilities, accountability and authority, which will give rise to trust, giving rise to a positive working/contractual relationship, giving rise to a successful project and accomplished stakeholders' goals. Innovation and reform efforts to the construction process, as manifested through general conditions of contract, have an effect (positive or negative) on the dynamics of contractual relationships. With an understanding of the necessary considerations of change in a contract and its impacts on the future development and revisions of general conditions, and its potential impact on the contractual parties, the next generation of contracts has an opportunity to evolve into better documents (with positive results and substantive outcome), not just bigger documents.

8 APPENDICES

APPENDIX A: STANDARD FORMS OF AGREEMENT FOR CONSTRUCTION CONTRACTS

A brief narrative of standard contracts for construction that are used in the construction industry today is presented below. This background information provides the context of how present contracts came about and by whom. The familiar standard forms of agreement covered here are published by the ICE (Institute of Civil Engineers), AGC (Associated General Contractors of America), EJCDC (Engineer's Joint Contract Document Committee), Federation Internationale des Ingenieurs-Conseils (FIDIC), and the NEC (New Engineering Contract).

8.1.1 THE INSTITUTE OF CIVIL ENGINEERS (ICE)

The Institute of Civil Engineers (ICE), founded by a group of British engineers on January 2, 1818, is a United Kingdom (UK)-based international organization. The formation of the ICE was an inevitable result of the development of the civil engineering profession at that time. And, the professional element of the organization distinguished it from other societies of its time. Its first president was Thomas Telford. Telford was one of the leading civil engineers of the time. Telford had political and society contacts and knew many of the professionals personally. He regularly introduced new members, some from overseas, to meetings, and most important of all, in 1828, was successful in obtaining for the Institution its Royal Charter, which gave it status as a leader of the profession. Today, ICE's vision is "to be the world's premier engineering institution. The ICE has become recognized worldwide for its excellence as a center of learning, as a qualifying body and as a public voice for the profession." (www.ice.org.uk)

Nael G. Bunni cites that various civil engineering contracts forms used by different employers prior to the Second World War (1939 – 1945) were combined by the ICE and the Federation of Civil Engineering Contractors in the UK into an agreed standard document. This was published in December 1945, and the document was thereafter known as the "General Conditions of Contract and Forms of Tender, Agreement and Bond for Use in Connection with Works of Civil Engineering Construction", also referred to as the "ICE Form" or the "ICE Conditions of Contract". In January 1950, it was revised and issued with the added agreement of the Association of Consulting Engineers of London. Other revisions followed in March 1951 (Third Edition); in January 1955 (Fourth Edition), which was later amended in 1969; in 1973 (Fifth Edition); and in 1991 (Sixth Edition). Since the publication of the first edition in December 1945, the ICE Conditions of Contract has been the leading contract used for civil engineering work in the UK. The main ICE Conditions of Contract is now in its 7th edition (published 1998). Over the years, a number of derivative contracts and guidance documents have been produced. "These revisions reflected some changes in the law and in the practice of civil engineering." (Bunni 1997, p. 3-4)

All the ICE contracts and other documents have been developed under the auspices of the Conditions of Contract Standing Joint Committee (CCSJC), a body comprising representatives of the ICE, the Association of Consulting Engineers, and the Civil Engineering Contractors Association. The ICE is one of the sponsors of the CCSJC and has three representatives on the committee. There are three members representing contractors and

three representing consultants. There is an independent chairman and an academic or legal representative. The responsibilities of CCSJC are centered on creating a logical organization of the "ICE Conditions of Contract", taking into account many of the modern industry practices and legislation, like the UK's Finance Act of 1996 and the Landfill Tax Regulations of 1996.

The ICE Form for civil engineering works is drafted on the basis that when a project is initiated by a developer or a promoter, the duties related to feasibility, design and supervision during construction of the project are entrusted to an independent consulting engineer who is referred to as the "Engineer" in the contractual arrangements between the developer and the contractor. The developer of such a project is referred to in these forms as the "Employer".

Furthermore, the ICE contract documents seeks "to create the right legal environment to minimize disputes and delays on civil engineering projects - and thus ensure maximum benefit for those commissioning them and for the public at large." (www.ice.org.uk). The ICE has provided other standard forms of contract, such as the ICE Conditions of Contract "Lump Sum", "Cost Reimbursable," and "Target Cost" versions, and the New Engineering Contract (The New Engineering Contract is discussed in Appendix A). The ICE is also instrumental at all levels in shaping new legislation affecting the profession, particularly in relation to safety, liability and environmental issues, and in drafting new codes of practice and standards.

8.1.2 ASSOCIATED GENERAL CONTRACTORS OF AMERICA (AGC)

The Associated General Contractors of America (AGC), headquartered in Washington, DC, is the nation's largest and oldest construction trade association. AGC was established in 1918 at the request of President Woodrow Wilson. Wilson recognized the national importance of the construction industry and desired a partner with which the government could discuss and plan for the advancement of the nation. "AGC has been fulfilling that mission for the last 80 years. The AGC, the voice of the construction industry, is an organization of qualified construction contractors and industry related companies dedicated to skill, integrity, and responsibility." (<http://www.agc.org>)

AGC represents more than 33,000 firms, including 7,500 of America's leading general contractors, and 12,000 specialty-contracting firms. Over 14,000 service providers and suppliers are also associated with AGC, through a nationwide network of chapters. "Operating in partnership with its chapters, the association provides a full range of services satisfying the needs and concerns of its members, thereby improving the quality of construction and protecting the public interest." (<http://www.agc.org>)

AGC began producing standardized documents in 1919. AGC contract documents are developed and revised through the work of AGC's Contract Document Committee (CDC) with the assistance of professional staff and consultants. The CDC defines its mission in the following terms:

"The Contract Documents Committee will be recognized as the leader in providing and continually improving balanced documents for the construction industry by: being aware of the needs and concerns of all AGC members and chapters; advocating equitable risk allocation between owners, architects, engineers and contractors; creating and endorsing a comprehensive family of documents and educating all parties in their use; providing critical information to the industry on contract documents issues; and reinforcing AGC's commitment [established in 1925]

to Skill, Responsibility and Integrity through contracts. The CDC currently is composed of over 100 members, who are experienced contractors, specialty contractors, attorneys, insurers, and other construction industry professionals from across the country.” (<http://www.agc.org>)

In order to develop contract documents that fairly and realistically balance the interests of project parties, AGC, like AIA, solicits input and comments from all segments of the industry. AGC maintains active liaisons with numerous trade and professional groups, including the Associated Specialty Contractors, Inc. (ASC), the American Institute of Architects (AIA), the Engineers Joint Contract Documents Committee (EJCDC), the Surety Association of America, the National Association of Surety Bond Producers, the American Insurance Association, the American Bar Association (ABA), and the American Arbitration Association (AAA), among others. In addition, AGC has formed a Private Industry Advisory Council (PIAC), consisting of design and construction professionals within Fortune 500 companies. PIAC, representing the views of corporate owners, meets regularly with representatives of the CDC to discuss construction-contracting issues of mutual concern and to participate in the development and revision of AGC standard form contract documents.

Another function of AGC liaisons is to comment on and, where appropriate, to consider for endorsement contract documents produced by other industry organizations, thereby providing a voice for contractors and specialty contractors in the development of other documents and materials that affect their industry. As part of that process, AGC solicits information from its members on their experiences with specific industry documents, such as AIA A201. AGC has produced a reporting form, titled “A201-1997 WATCH” to gather contractors’ “real-world” experiences with AIA A2011997. This information will be reported to the AIA during the next revision cycle for AIA A201.

AGC continually seeks opportunities to enhance and shape solutions for the business environment in which contractors, specialty contractors, and other construction industry professionals work. AGC asserts that,

“The advantages of using industry-accepted standard form contracts are significant. If the standard form is an AGC form, industry experts—general contractors, owners, specialty contractors, construction law attorneys, and others—have collaborated in drafting it, an assurance that you have the best minds in the business crafting and scrutinizing each standard form. As a result, many industry viewpoints are weighed and considered, thereby ensuring an equitable balance of risks and responsibilities and an appropriate baseline for the parties’ legal relationship. The development of AGC standard form contract documents and related materials are tangible embodiments of that effort.” (<http://www.agc.org>)

Contracts published by AGC are:

- General Contracting Documents, e.g., Standard Form of Agreement and General Conditions Between Owner and Contractor (Where the Contract Price is a Lump Sum), also known as AGC 200 [Like AIA A201, this is the base contract in the AGC contracting system.]
- Design-Build Documents, e.g., Preliminary Design-Build Agreement Between Owner and Design-Builder (AGC 400)
- Program Management Documents, e.g., Standard Form of Program Management Agreement and General Conditions Between Owner and Program Manager (AGC 800)

- Construction Management Documents, e.g., Standard Form of Construction Management Agreement Between Owner and Construction Manager (Where the Construction Manager Is The Owner's Agent and The Owner Enters Into All Trade Contractor Agreements) (AGC 510)
- Subcontracting Documents, e.g., Subcontract for Use on Federal Construction (AGC 601) Short Form Subcontract (AGC 603)
- Publications covering industry related issues, such as risk allocation, project delivery systems, bonds, partnering, insurance and ADR, are also created by AGC.

Johnson expresses the view,

“The impetus to produce the AGC 200 came in early discussions between AGC contractors and PIAC owners that revealed a shared desire to craft owner-contractor agreements that would balance perspectives and apportion risks and responsibilities fairly. These discussions identified areas that negatively impact the purchase of construction services by owners, the dispute-free progress of the construction work, and the efficient close-out of the construction project...From this discourse came the development of contract clauses that reduce project costs and [benefit] owners and construction team charged with building the project.” (Johnson 1999)

The drafters of the base contract, AGC 200, held the philosophies of:

- Focus on the quality of the relationship between the owner and the contractor and not on other relationships, such as that between the owner and the architect. This focus area was chosen in an effort to minimize misunderstanding that might arise.
- Assume that the owner will take an active role in administering the project.
- Delineate clearly the rights and obligations of the owner and the contractor, so that each contracting party understands what is expected of the other.
- Set a positive tone for the owner-contractor relationship at the outset of the agreement and reinforce the sentiment by including a provision.
- Lay out to the contracting parties in clear, concise fashion the kinds of information to be exchanged during contract performance.
- Require the owner to provide all professional design services required for completion of the work and the contractor may provide design services to the extent necessary to carry out the contractor's responsibility for construction means and methods.
- Parties are to agree to waive all claims for consequential damages against the other arising from the performance of the agreement.
- Direct discussions and mediation are preconditions to any other dispute resolution process, and the parties are provided a flexible menu of other methods. (Johnson 1999)

AGC standard forms also are regularly updated to keep pace with changes in the law and in the industry. They are inexpensive and readily available in printed and, in many instances, electronic formats. They are also created to address a variety of project delivery types and legal arrangements. According to AGC, the immediate users of AGC standard forms are not the only beneficiaries, however. AGC standard form contracts provide an invaluable reference to accepted industry practices and customs. In fact, they serve as written “spokespersons”

for contractors and the industry, relating the best paths to successful projects. Both users and nonusers benefit from the dissemination of this kind of industry knowledge. (Johnson 1999)

AGC is committed to three tenets of industry advancement and opportunity: skill, integrity, and responsibility. AGC is dedicated to improving the construction industry by educating the industry to employ the finest skills, promoting use of the latest technology and advocating building the best quality projects for owners--public and private. (www.agc.org)

8.1.3 ENGINEER'S JOINT CONTRACT DOCUMENT COMMITTEE (EJCDC)

The AIA had a document for architects who associated with engineers in private practice, but this document was not satisfactory for a number of contractual relations in which engineers in private practice might be involved. In 1963, the Professional Engineers in Private Practice (PEPP), a section of the National Society of Professional Engineers (NSPE), whose primary focus was on good employment practices for firms engaged in private practice, formed the Contract Documents Committee (CDC).

The first document developed by the PEPP was a standard form of agreement between owner and engineer for professional services. A standard form of letter agreement between owner and engineer followed. The Architect's Handbook of Professional Practice states,

"As the section [PEPP] became more involved with contractual relationships, and as questions arose regarding liability, legal challenges, and other matters affected by the original contract, it became evident that the documents required constant review. Legal advice, in addition to the services of the NSPE legal counsel, was retained, and the document was revised periodically. Many times revisions were influenced by court interpretations of contract conditions" (Architect's Handbook of Professional Practice 1994, p. 182).

Later, representatives of the American Society of Civil Engineers (ASCE) joined the CDC. The name of the Committee was then changed to the Engineer's Joint Contract Document Committee (EJCDC). Shortly, thereafter, representatives of the Construction Specifications Institute (CSI) joined the EJCDC. The CSI seal appears on EJCDC publications that pertain to the construction process. The CSI relationship with the EJCDC has recently changed from that of a member to that of an observer.

EJCDC is a joint committee representing a major portion of the professional design community engaged in the practice of providing professional engineering services as may relate to the constructed project. NSPE and EJCDC legal counsel, Arthur Schwartz states that the overall mission of EJCDC is

"to develop and maintain quality standard engineering contract documents, promote the use of the documents in the construction industry, and continually educate all users of the documents." (Schwartz 1999)

The EJCDC worked closely with the AIA committee and issued a parallel set of general conditions for engineering work. This resulted in a publication called Standard General Conditions of the Construction Contract. Clark acknowledges,

"EJCDC frequently sit with and participate in the deliberations of the counterpart committees in the other societ[ies] with a view to presenting a common philosophical approach to the duties, responsibilities and authority of the design professional and developing standard language for common use in their preprinted forms as appropriate." (Clark 1993)

Over the years, these working relationships would generate other standard forms and documents, which would be useful to engineers in private practice. In 1983, EJCDC published a series of Construction Related Documents, which include the Owner-Contractor Agreements, General Conditions, Guide to Preparation of Supplementary Conditions, Guide to Preparation of Instructions to Bidders, Suggested Bid Form, and eight supplementary forms. By the late 1980's, 22 different forms and agreements were published by the NSPE. During preparation of these documents, representatives of the Associated General Contractors of America (AGC) took an active part in the deliberations. The AGC's seal of endorsement appears on all of the EJCDC's 1983 series of Construction Related Documents.

The EJCDC prepares and publishes:

- Standard forms of agreements for professional engineering services
- Standard contract documents and related forms for construction projects
- Guidelines and commentaries on the use of the EJCDC documents and matters related to the roles and responsibilities of the owner, engineer, contractor, and others involved in a project's design and construction.

In developing an updating its publications, the EJCDC considers:

- Ideas and suggestions of its committee members, other engineers and practitioners, owners, contractors, attorneys, and others familiar with customs of practice and developments in the applicable field
- Recent legislation and court decisions
- Advice of legal counsel

Similar to the AIA's claim of their documents, Clark points out that,

"EJCDC's publications are intended to be objective and fair to all parties, to recognize and respect the separate interests, capabilities and roles of those parties, and to provide for a professionally and nationally recognized and acceptable level of engineering practices." (Clark 1993)

The NSPE states,

"It is the EJCDC's belief that the use of these documents can reduce conflicts and litigation." (Clark 1993)

To sum up, Schwartz states,

"While EJCDC has attempted to maintain documents with test and proven language, at the same time the committee has evolved toward a more focused posture on the external environment of contract language and document needs. There is an increasing emphasis on the total project construction team, including the owner, design team, contractor, suppliers and users; on government, legislative and regulatory positions, liability exposures, a litigious business climate and more stringent environmental and design standards which EJCDC needs to monitor continuously." (Schwartz 1999)

EJCDC documents are used primarily for engineered construction in the private sector. The EJCDC has existed to produce and promote the use of quality forms of agreement and other contract documents for constructed facilities involving professional engineering services. Currently, as a joint venture of the NSPE/PEPP,

the American Consulting Engineers Council (ACEC), and the ASCE, the documents have been reviewed and revised over the years and many new forms added. Revised editions of the more frequently used documents are usually published once every five years.

8.1.4 FEDERATION INTERNATIONALE DES INGENIEURS – CONSEILS OR INTERNATIONAL FEDERATION OF CONSULTING ENGINEERS (FIDIC)

The most commonly used standard contract for international transactions, specifically civil engineering construction, is the one generally referred to as the FIDIC contract. (Sweet 1994) Many in the international world use the contracts published by the Federation Internationale des Ingenieurs-Conseils (FIDIC) located in The Hague, Netherlands.

Nael G. Bunni has documented the history and development of the FIDIC contract. Bunni is the author of the FIDIC Form of Contract, the Fourth Edition of the Red Book, 2nd Edition. Bunni's book is the most comprehensive examination and commentary on the history and development of the FIDIC contract whose work forms the basis for much of the information that follows. The evolution of the FIDIC contract is recounted below.

The need for a form similar to the ICE contract, but more suited to the international construction field prompted the Association of Consulting Engineers in the UK, jointly with the Export Group for the Construction Industries in the UK, and with the approval of the ICE, to prepare a document for use in other parts of the world. It was published in August 1956 and became commonly known as the Overseas Conditions of Contract (the ACE Form).

The ACE Form as published in 1956 included a standard Form of Tender, an Appendix, and a Standard Form of Agreement. It was published in a blue cover, which helped to distinguish it from the ICE Form. "It was, perhaps, the first standard form of international conditions of contract for civil engineering works. In concept and style, however, it remained faithful to the original domestic form." (Bunni 1997, p.6)

The ACE Form had only been used for a short period of time when the Conditions of Contract (International) for Works of Civil Engineering Construction was published in August 1957. This was based on the ACE Form and was published in two parts. Perhaps because of its long title, in a very short time it became popularly known as the "Red Book" (its cover was printed in red). It was prepared by the Federation Internationale des Ingenieurs Conseils [the International Federation of Consulting Engineers] (FIDIC) and the Federation Internationale du Batiment et des Travaux Publics [the International Federation of Building and Public Works, now known as the International European Construction Federation] (FIEC).

FIDIC is the international federation of duly elected associations of consulting engineers representing the profession in their respective countries. Membership in the federation is restricted to one association for each country. "To qualify for membership, an association must demonstrate that its statutes, bylaws and regulations ensure that its members comply with the ethics and professional code of practice of a consulting engineer as outlined and according to the principles endorsed by FIDIC." (Bunni 1997, p.6)

The 2nd edition of the Red Book was published in July 1969, when the document was approved and ratified by the International Federation of Asian and Western Pacific Contractors' Associations. The 2nd edition, however, included no changes in the text. A reprint of the 2nd edition in 1973 added the approval and ratification by the

Associated General Contractors of America (AGC) and the Inter-American Federation of the Construction Industry.

“The publication of the controversial Fifth Edition of the ICE Form in June 1973 provided an impetus for a further revision of the Red Book.” (Bunni 1997, p. 8) It was in March 1977 that the 3rd edition of the Red Book was published, incorporating some significant changes. These changes, however, did not follow in all respect those changes made in the coexisting ICE 5th edition.

Bunni elaborates further,

“As in the ACE Form, the importance of the law governing a specific contract, the applicable law of the contract, was recognized in the Red Book, but despite this, no attempt was made to depart from the principles of the common law under which the ACE and the ICE Forms were drafted. Neither was there any attempt to recognize that there could be a conflict of laws between the common law system and any other system of law to which the applicable law of the contract belonged. Despite this lack of recognition, it seems that the provisions of the Red Book coped extremely well, and for a long time, with any conflict of laws, which may have existed.” (Bunni 1997, p.11-12)

The 2nd (1969) and 3rd editions (1977) of the Red Book proved to be successful in many projects throughout the world. The 3rd edition, in particular, coincided with the major economic growth which took place in developing countries towards the end of the 1970s and the major part of the 1980s and, particularly, in the Middle East and the Far East. The 3rd edition was translated into French, German, and Spanish.

Bunni establishes that,

“Criticism came to the surface only in recent years when the number of disputes ending in arbitrations increased and every clause and term in the Red Book came under the scrutiny of lawyers experienced in discovering differing interpretations to a set of words. This problem and others were dealt with quite successfully when the revision of the Third Edition was undertaken by FIDIC.” (Bunni 1997, p. 11-12)

The 3rd edition of the Red Book remained unaltered and no amendments were issued until the 4th edition was published in September 1987, when major revisions were made which extended even to the title of the document. The word “international” was deleted, inviting parties from all over the world to use the Red Book, not only in international contracts, but also in domestic contracts.

Part II of the Red Book, which is referred to as the “Conditions of Particular Application” was expanded and produced in a separate booklet. It is linked to Part I by the corresponding numbering of the clauses, so that Parts I and II together comprise the conditions governing the rights and obligations of the parties. Part II must be specifically drafted to suit each individual contract. To assist in the preparation of Part II, explanatory material and example clauses are included providing the parties with options for their use where appropriate.

In 1988, the 4th edition of the Red Book was reprinted with a number of editorial amendments, which were identified at the end of the document. These amendments were of a very minor nature and did not affect the meaning of the relevant clauses, but simply clarified their intention.

Later, in 1992, further amendments were introduced in a reprint of the 4th edition of the Red Book. A uniform style of drafting was adopted. The goal was to attain increased clarity and reduce complexity of selected contract provisions by either adding to or changing the meaning of relevant clauses.

Bunni reports,

“In November 1996, FIDIC published a document entitled ‘Supplement to Fourth Edition 1987 – Conditions of Contract Works of Civil Engineering Construction – Reprinted 1992 with Further Amendments.’ It is intended to provide the user with alternative arrangements in three controversial areas of the Red Book, thus giving him a choice in the method to be used for: settlement of disputes; payment; and preventing delay in certification for the purpose of payments.” (Bunni 1997, p. 15)

The 1996 Supplement, which introduced the concept of the dispute adjudication board, provided an alternative to the traditional role of the engineer. FIDIC employs a complex dispute resolution system. FIDIC, by requiring an express provision, felt that it is important to emphasize that parties to a dispute should do their best to try to settle among themselves before they take it to a third party. “An express provision that states the obvious can be helpful in getting the disputants to do what they should be doing.” (Sweet 1997, p. 463)

“Despite the universal use of the Red Book, its Fourth Edition retained some essential features and concepts which formed the foundation of its previous editions. In order to understand the provisions of the Red Book and the implications of the changes made in the Fourth Edition and its most recent amendments, it is essential to elaborate on these concepts as background to the form of contract itself, on the reasoning underlying the revisions it was necessary to make and underlying further changes which could have been made but were not. These concepts are set out below:

- Apart from a few revisions, which have been made, it is based on a domestic contract, the ICE Form.
- Its legal concepts are based on the common law system.
- Its wording is based on English legal drafting principles.
- Its concept, in relation to the design and supervision of construction of the project, is based on the appointment of a consulting engineer trusted by both parties to the contract and referred to as the ‘Engineer’ (This is central to the whole contract).
- Its concept of remuneration is based on a re-measurement contract with a provisional bill of quantities, which serves as a basis for final re-measurement and payment, under certificates from the engineer.
- Its concept of responsibility and liability is based on the sharing of the risks between the contracting parties. (Bunni 1997, p. 16-17)

Over the years, use of the Red Book has contributed to the successful completion of many projects around the world. The Red Book has been used continuously more than any other form in the international scene for over 40 years. Most international development and financial institutions, including the World Bank, have endorsed its use. The World Bank, in its 1995 Standard Bidding Documents for major projects, adopted the 1992 reprint of the 4th edition of the Red Book as its standard form of contract. “The Red Book is a balanced document providing an excellent Standard Form of Conditions of Contract with sufficient rules for a construction contract.” (Bunni 1997).

8.1.5 NEW ENGINEERING CONTRACT (NEC)

In engineering and construction practices, there is a great concern for the inefficiency and contractual disputes debasing the success of projects. In September 1985, the ICE requested that its legal affairs committee review best practice strategies of alternative contracts. In the UK, some construction industry stakeholders and constituents are of the opinion that improved contracts will better govern the management of projects and control disputes. (Thompson 1998) The ICE supported the creation of a new contract aimed to reduce litigation and improve efficiency on projects. Moreover, increasingly, culture, cooperation, quality management, team skills, and problem-solving capabilities are vital to the prosperity of construction businesses. In July 1986, the ICE commissioned work to begin on the development of an alternative contract for civil engineering design and construction projects.

Dr. Martin Barnes, fellow of the ICE, with the assistance and collaboration of Professor John Perry, Head of the Civil Engineering Department of the University of Birmingham, authored the original specifications for the New Engineering Contract (NEC), a set of alternative general conditions of contract. Barnes and Perry lead a writing team of ICE members, contractor representatives, consulting engineers, and members of the legal profession in drafting a new and innovative style contract. The NEC “is designed to view the contract as a management tool to achieve a successful project, not merely to saddle the party with the weakest bargaining position with all the risks.” (Sweet 1994) The National Contractors Group (NCG), which represents Britain’s largest building companies, also endorsed the NEC. “They shared the sentiment that necessary radical changes to general contract conditions were essential to create a more efficient industry.” (Thompson 1998, p. 20)

In January 1991, the consultative version of the NEC was completed and released to construction industries in the UK, Africa, Hong Kong, and South America. This issue was sent out to solicit comments, objections, and advice on the new alternative general conditions from ICE members, contractors, engineers, surveyors, suppliers, and lawyers. Thereby, the various stakeholders in the design and construction industry contributed extensive feedback. The welcomed information was received, investigated, and required changes to be made to the developing document.

In March 1993, the 1st edition of the NEC was released for widespread use. In July 1994, Sir Michael Latham issued a report on behalf of the UK Government stating, “The NEC should be adopted in both the private and public sectors and should become the national standard contract.” Latham went on to state, “widespread use of the NEC will reduce the number of disputes in the industry.” (Thompson 1998, p. 21)

In June 1995, the 2nd edition of the NEC was published and released. This edition was improved, rewritten, and the name changed to the “Engineering and Construction Contract (ECC).” The 2nd edition includes amendments and improvements developed as a result of feedback from users. There were drafters of various constituencies put in “working groups” to draft the framework of the documents. The work was consolidated and edited for consistency. During these deliberations, ICE Legal Affairs Panel was consulted to consider the conditions of contract for practical use, as well.

Presently, there is now an entire package of contract documents called the NEC system or “family” of contracts. The family of contract documents consists of:

- Engineering and Construction Contract (ECC) [Like the AIA A201 and AGC 200, this is the main document in which all other documents stem.]
- Engineering and Construction Subcontract (ECS)
- Professional Services Contract (PSC)
- Adjudicator's Contract (AjC)
- Plant Contract
- ECC Short Contract
- Maintenance Contract
- Product Contract

The ICE issues new documents "as needed." The new documents expand the flexibility and variety of the system's use. NEC's intended use is for any type of engineering or building project. It is a set of contract documents that is suited for building and civil engineering projects in any of the various management forms in the UK and worldwide.

The NEC is designed to meet the demand of modern project management techniques. "Development in project management techniques and their implementation over the last 20 years have moved faster than the evolution of the traditional form of contract." (Thomas Telford 1997) To improve the management of the whole engineering and construction process, the NEC provides clear division of role and responsibilities, which interfaces with the parties title and their contractual link as set out in the organizational structure. Explicit and definitive roles and responsibilities are critical to the organization of a project. ICE supports that under the NEC, the parties have a better understanding of who is to do what and when, and what the consequences are for action or lack of action.

The writing of the NEC documents is in plain English to minimize the incidence of disputes arising from ambiguous meanings. Except in the insurance clause, there is no legalese. "The language is intended to be familiar to the language of builders and other people in the construction industry worldwide...Many of the customary legal concepts and forms of words are discarded in the interests of better communication and management of project." (Thompson 1998, p. 37)

The process of the NEC development was motivated to achieve certain criteria for a new and improved contract. In short, the goals were:

- To develop a system of operations that attempts to do away with the adversarial nature of current contract conditions
- To stimulate good project management
- To inspire the parties involved in a project to be anticipatory and cooperative in their managing strategies
- To contribute to the effectiveness of management and improve relations in the life of a project; in other words, the NEC aims to promote the better management of projects
- To provide the means necessary for the contractor and client to ensure the job is finished on time and on budget.
- To reduce disputes and eliminate litigation

- To be easily adaptable for most types of work; to have wide applications in management under various scopes and values of work, instead of a project that might otherwise be under taken under a multiple range of contract forms.
- To be ordinary and simple enough to be understood by the working parties
- To increase efficiency and better management of projects
- To reallocate risk so that people are motivated to cooperate; it is in their best interest to work together
- To simulate good management; “Every procedure has been designed so that its implementation should contribute to rather than detract from the effectiveness of management of the work” (Thomas Telford 1997).

Thomas Telford Limited (Telford), the publishing house of the ICE, provides the administrative support for the NEC. Telford’s fundamental proposes are “to serve the needs and to facilitate advancements in engineering and construction profession.” (Thomas Telford 1997) Therefore, they provide training, recruitment, publications, and symposiums on engineering and construction issues.

The ICE’s official advisory committee for the NEC is the NEC Panel (Panel). The Panel is composed of senior members of the construction industry, many of whom served on the drafting committees and represent owners, consultants, contractors, suppliers, and the legal profession. Their primary task is to continuously review the existing documents in response to users’ needs and comments, and changing legislation. The Panel also exists to improve the NEC and broaden the range of contracts and supporting documents.

The NEC User’s Group is a forum for users and potential users, and interested parties of the NEC to exchange ideas and experiences. The aims of the User’s Group are to offer guidance on the practical application of the NEC and to disseminate information about NEC development and applications. The User’s Group also gauges the success and/or failure of the NEC. The Panel maintains close ties with the NEC User’s Group to maintain a free flow of information about pragmatic use of the contract. Mainly, the User’s Group exists for people and organizations that are interested in learning about, participating in, and supporting the development and success of the NEC.

The designers of the NEC were looking from the viewpoint of how a construction management system through fair contract, will help to produce a successful outcome for all concerned by preventing disputes and being a vehicle for positive collaboration and effective project management. (Barnes and Thompson 1997) The drafters of the NEC were of the opinion that managers of organizations work as a team, if they are motivated to do so. Therefore, the framework of the new contract was intended such that the parties can and are motivated to work together.

8.1.6 SUMMARY

This appendix has provided an introduction to the evolution of current standard contracts that are used in the construction industry today. Background information was provided on the ICE contracts, AGC contracts, EJCDC contracts, CMAA contracts, FIDIC contracts, and the NEC contracts. After studying the aforementioned

contracts, knowledge is gained in who developed them, what motivations and philosophies underlined their creation, and what documents exist under its auspices.

To thoroughly examine change in the provisions of contract documents, the focus of the research for this dissertation is on only one standard contract, based on the criteria of its long standing in history, its widely accepted use, and well-documented experiences. As a result, the ICE and AIA (covered in Chapter 2.5 and Chapter 2.6) contracts stand above the rest. Both have been in use for a long time, both are widely used in the industry, and experience of their use is well documented. AGC and EJCDC are modeled after the AIA, and FIDIC is modeled after the ICE. For the purpose of this research, which will concentrate on the US industry practices and experiences, the contract documents published by the AIA (i.e. AIA A201) are the focus of this dissertation.

APPENDIX B: EXISTENCE OF INDUSTRY ORGANIZATIONS AND THEIR RESPECTIVE CONTRACTS

In the words of Justin Sweet,

“There’s a market in standard documents, just as there’s a market in TV sets and cars. Buyers vote their preference through their document purchases...If you see that your forms are not selling, you can see that people don’t want the arrangement that your forms create.” (Sweet 1997, p. 92)

For decades, various construction industry interest groups have provided “standard form” contracts for design and construction services. Those documents are usually and understandably biased in favor of the constituents of the organizations, which produce them. Thus, many organizations undertake the challenge to provide a balanced alternative, yet they are, in all likelihood, more in keeping with its organizational vision and mission.

8.1.7 AMERICAN SOCIETY OF CIVIL ENGINEERS

The American Society of Civil Engineers (ASCE), a professional organization representing more than 123,000 civil engineers, celebrates its 150th anniversary in 2002. ASCE brings together the development and transfer of research results, and technical policy and managerial information. ASCE emphasizes infrastructure renewal and development, policy leadership, and professional development. ASCE produces publications, programs, and services to its worldwide membership in efforts to sustain the civil engineering profession. ASCE is a member of the Engineers Joint Contract Documents Committee (EJCDC). The EJCDC includes ACEC, ASCE, and NSPE’s Professional Engineers in Private Practice division. The EJCDC develops and periodically updates standard documents that are presumed to represent the latest and best thinking of practicing engineers and attorneys on the subject of contractual relations between the parties involved in a project. All of the EJCDC documents are prepared with the advice of legal counsel and reflect the experience of the practicing engineers who constitute the EJCDC.

8.1.8 AMERICAN COUNCIL OF ENGINEERING COMPANIES

The American Council of Engineering Companies (ACEC) provides the executives of private engineering firms with the tools and educational opportunities to be better business owners and managers. ACEC also presents a strong, cohesive voice for the profession in national legislative and policy debates to help ensure that firms can compete fairly in an increasingly aggressive world market. ACEC’s origins date back to 1910 with the founding of the American Institute of Consulting Engineers. The Consulting Engineers Council was established in 1956, and in 1973, the Council merged with the Institute to form the American Consulting Engineers Council, also known as the American Council of Engineers Companies.

The goals of the umbrella group of the American Consulting Engineers Council are

"to help its members achieve higher professional and business standards for consulting engineers; ensure that ethical standards were maintained; act as an information clearinghouse for the profession; advise on enactment of national, state and local legislation affecting members' interests; and support and assist the advancement of the science and practice of engineering."

ACEC's programs provide representation, association, information, training, resources and other tools to the principals of member firms so that they can be successful business people. ACEC is also a member of external organizations, such as the EJCDC.

8.1.9 ASSOCIATED GENERAL CONTRACTORS OF AMERICA

The Associated General Contractors of America (AGC) is an organization of construction contractors and industry related companies dedicated to skill, integrity, and responsibility. In partnership with its chapters, the AGC provides a full range of services satisfying the needs and concerns of its members, thereby improving the quality of construction and protecting the public interest. The AGC claims to be the nation's largest and oldest construction trade association.

The AGC was established in 1918 at the request of President Woodrow Wilson. "Wilson recognized the construction industry's national importance and desired a partner with which the government could discuss and plan for the advancement of the nation." (www.agc.org) The AGC begins to produce standardized documents in 1919. In 1925, AGC commits itself to three tenets of industry advancement and opportunity: skill, integrity, and responsibility. In 1996, AGC publishes the first industry standard form program management document, AGC 800. AGC contract documents are developed and revised through the work of AGC's Contract Documents Committee (CDC) with the assistance of professional staff and consultants. The CDC currently is composed of 100 members, who are experienced contractors, specialty contractors, attorneys, insurers, and other industry professionals.

The CDC defines its Mission in the following terms:

The Contract Documents Committee will be recognized as the leader in providing and continually improving balanced documents for the construction industry by: being aware of the needs and concerns of all AGC members and chapters; advocating equitable risk allocation between owners, architects, engineers and contractors; creating and endorsing a comprehensive family of documents and educating all parties in their use; providing critical information to the industry on contract documents issues; and reinforcing AGC's commitment to Skill, Responsibility and Integrity through contracts.

"In order to develop contract documents that fairly and realistically balance the interests of project parties, AGC solicits input and comments from all segments of the industry." (AGC A201-1997 1998) The CDC gets together "to discuss construction contracting issues of mutual concern and to participate in the development and revision of AGC standard form contract documents. AGC liaisons comment on and, where appropriate, consider for endorsement contract documents produced by other industry organizations, thereby providing a voice for contractors and specialty contractors in the development of other documents and materials that affect their industry."

The development of AGC standard form contract documents and related materials are tangible embodiments of their effort "to enhance and shape solutions for the business environment in which contractors, specialty contractors and other construction industry professionals work." (ENR October 1998) AGC claim that since many industry viewpoints are weighed and considered, an equitable balance of risks and responsibilities and an appropriate baseline for the parties' legal relationship is ensured.

8.1.10 NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

The National Society of Professional Engineers (NSPE) represents individual engineering professionals and licensed engineers across all disciplines. Founded in 1934, NSPE aims to strengthen the engineering profession by promoting engineering licensure and ethics, enhance the engineer image, advocate and protect PEs' legal rights at the national and state levels, publishes news of the profession, provides continuing education opportunities, and much more. NSPE serves some 60,000 members and the public through 53 state and territorial societies and more than 500 chapters. The vision of NSPE is to be "the premier national organization that promotes and defends the professional interests of all engineering professionals." ASCE is a member of the EJCDC.

8.1.11 CONSTRUCTION MANAGERS ASSOCIATION OF AMERICA

The Construction Managers Association of America (CMAA) supports professional construction managers in enhancing their performance and capabilities, and improving their business results. CMAA is a 19-year-old Industry Association. The Association's mission is "to promote professionalism and excellence in the management of the construction process." Membership in CMAA includes more than 1,200 firms and individuals, Owners, engineers, architects, contractors, educators, and students. CMAA also gives project owners information about the practice of construction management, and assists them in identifying qualified professional CMs for current and future projects. The vision of CMAA is "to be the Authority in the Management of the Construction Process."

CMAA is an advocate for the construction industry and helps to protect members' interests. Thus, CMAA has developed a family of standard contract forms "in order to help CMs and owners assure that their agreements are as complete, detailed and current as possible. CMAA claims that using these standard documents increases the predictability of project outcomes, simplifies management, and updated regularly as dictated by changing industry practices.

8.1.12 SUMMARY

AIA standard agreements "can be read to either directly benefit the architect or diminish his or her responsibilities." (Cook and Paulk 1995) Cook and Paulk argue that AIA contract "language like 'for approval by the owner,' and provisions stating that public owners agree to 'designate a representative authorized to act on the owner's behalf,' and to 'render decisions in a timely manner pertaining to documents submitted by the architect,' can, taken as a whole, serve to lessen the architect's liability for errors and omissions in the plans and specification." (Cook and Paulk 1995)

It is feasible to assume that the organizations' (e.g. EJCDC, AGC, CMAA, and COAA) family of contract documents is in response to the evolution of and/or incremental changes within the AIA published documents. At the same time, the evolution of the AIA family of documents through the process of incremental changes (directly or indirectly) resulted in incremental changes in the family of documents published by such entities as the EJCDC, AGC, CMAA, and COAA.

Appendix C

APPENDIX C1 – CORRESPONDENCES



Date _____

PRE-NOTICE LETTER (Phase 2)

Name _____

Title _____

Company _____

City, State Zip Code _____

Dear Mr./Mrs./Dr. _____:

Virginia Tech is conducting a study of AIA A201 General Conditions of Contract. This study seeks to investigate changes to key provisions in the AIA A201 and their impact on the perception of the value-added benefit of the services provided by the design professional during the construction process. In a few days from now, you will receive in the mail a request to fill out a brief questionnaire for an important research project.

I am writing in advance, because we have found many people like to know ahead of time that they will be contacted for participation. The contribution of your experiences and opinions to this important study is greatly appreciated.

It is only with the generous help of people like you that our research can be successful.

If you have any questions, please contact me at roxene@vt.edu / (202) 332-5445 or Dr. Michael Vorster at mikev@vt.edu / (540) 231-5009. Thank you for your time and consideration.

Sincerely,

Roxene M. Thompson
Ph.D. Candidate



Date _____

Name _____
Title _____
Company _____
City, State Zip Code _____

COVER LETTER (PHASE 2)

Dear Mr./Mrs./Dr. _____:

Virginia Tech is conducting a study of AIA A201 General Conditions of Contract. This study seeks to investigate changes to key provisions in the AIA A201 and their impact on the perception of the value-added benefit of the services provided by the architect during the construction process. I am soliciting your valuable insights and contributions to this research project, as you are an industry professional with a variety of experiences and a number of years in the construction industry.

The enclosed questionnaire identifies key provisions of AIA A201 General Conditions of Contract and investigates a significant change to those that have occurred between 1951 and 1999. I would sincerely appreciate it if you would complete the questionnaire and return it to me, postmarked by **Friday, March 12, 2004**, in the envelope provided. You will assist this research effort very much by taking a few minutes to share your experiences and opinions. I estimate that it will take about thirty minutes to complete the document.

After receipt of your completed questionnaire, I may contact you to arrange for a brief face-to-face interview or a phone interview at your convenience to follow up with another phase of the research study.

Your participation in this survey is voluntary. Your answers are completely confidential and will be released only as summaries in which no individual's answers can be identified. The questionnaire has an identification number for mailing purposes only. When you return your completed questionnaire, your name will be deleted from the mailing list and never connected to your answers in any way. If for any reason you prefer not to respond, please let me know by returning the blank questionnaire in the enclosed stamped envelope.

I appreciate the fact that this is a substantial request. As a way of saying thanks for your help by completing and submitting the enclosed survey, I have enclosed a small token of my appreciation, a Starbucks gift card valued at \$5.

If you have any questions or comments about this study, I would be happy to talk with you. You may contact me at roxene@vt.edu / (202) 332-5445.

Sincerely,

Roxene M. Thompson
Ph.D. Candidate

APPENDIX C2 - SURVEY QUESTIONNAIRE

An Investigation of Change in the AIA A201

THE CHARLES E. VIA, JR. DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
& VECELLIO CONSTRUCTION ENGINEERING AND MANAGEMENT PROGRAM

***Please return your completed questionnaire in the enclosed envelope
by Friday, March 12, 2004 to:***

Roxene M. Thompson
Ph.D. Candidate
Virginia Tech.
2112 New Hampshire Ave. NW, Apt. 415
Washington, DC 20009-6527

Construction industry players, rules, customs, and practices have evolved over time in response to changes in the construction industry. The process of making incremental changes to The American Institute of Architects (AIA) Document A201, General Conditions of the Contract for Construction (hereinafter referred to as "AIA A201"), as evidenced by the various editions, has occurred due, in part, to these changing rules, customs, and practices.

This survey is intended to identify key provisions of AIA A201 and investigate significant changes to those provisions over time. The dissertation committee members are supportive of the survey objectives and have contributed to its success. The results of this survey will be presented anonymously.

Please take time to complete all of the following questions. Choose what you consider to be the most reasonable and appropriate answers. **Your contribution is greatly appreciated! Please return by Friday, March 12, 2004.**

PART I: YOUR BACKGROUND

1) Which of the following professional categories **best** describes your **primary role** in the construction industry? **(Check only one box)**

- | | | | |
|---|---|-------------------------------------|--|
| <input type="checkbox"/> Architect (2) | <input type="checkbox"/> Engineer (3) | <input type="checkbox"/> Academic | <input type="checkbox"/> Owner (1) |
| <input type="checkbox"/> General Contractor (7) | <input type="checkbox"/> Construction Manager (8) | <input type="checkbox"/> Lawyer (9) | <input type="checkbox"/> Other (2) Gov't Agency, Contr. Claims analyst |

2) Which sector of the construction industry do you **primarily** represent or provide services to? **(Check only one box)**

- | | | |
|--|---|-----------------------|
| <input type="checkbox"/> Private sector (18) | <input type="checkbox"/> Public sector (13) | Incorrect: (1) |
|--|---|-----------------------|

3) Of the following identified areas of the industry, which one **best** identifies the type of work you are **primarily** engaged in? **(Check only one box)**

- | | | |
|---|--|--|
| <input type="checkbox"/> Commercial (7) | <input type="checkbox"/> Transportation/Infrastructure (3) | <input type="checkbox"/> Institutional (3) |
| <input type="checkbox"/> Residential (1) | <input type="checkbox"/> Governmental (4) | <input type="checkbox"/> Legal (8) |
| <input type="checkbox"/> Claims Analysis/Expert Witness (3) | <input type="checkbox"/> Other (1) Insurance / Combination (2) | |

4) How many years have you worked in the construction industry? **(Check only one box)**

- Less than 10 years
- 11 – 15 years (2)
- 16 – 20 years (3)
- 21 – 25 years (5)
- 26 – 30 years (4)
- 31 – 35 years (7)
- 36 years or more (11)

PART II: USE OF AIA A201

5) Are you currently using, have you previously used, or are you otherwise familiar with documents from the AIA A201 "family" of contract documents?

- Yes (Go to Question 6) (28)
- No (Go to Question 7) (4)

6) Considering your use of or familiarity with AIA contract documents, are you using or have you used these documents "as printed," or are you making or have you made modifications to these documents? **(Check the boxes that apply)**

- Using or used as printed (6)
 - Using or used with minor modifications (17)
 - Using or used with major modifications (15)
 - Using or used as a "model" for my own and/or the owner (5)
 - Using or used in combination with my own documents and/or my client's documents (11)
- No Response: (4)**

PART III: KEY AIA A201 PROVISIONS

7) *There are differing opinions regarding the effect that the evolution of key provisions in AIA A201 have had on the function of the Architect and/or whether the resulting changes have improved or hindered the construction process.*

a. CONTRACTUAL ROLE OF THE ARCHITECT

Study the following contract language concerning the **ROLE OF THE ARCHITECT** from AIA 201 for the years indicated:

1951: "The Architect shall have general supervision and direction of the work. He is the agent of the Owner only to the extent provided in the Contract Documents and when in special instances, he is authorized by the Owner to act, and in such instances he shall, upon request, show the Contractor written authority...As the Architect is...the interpreter of the conditions of the Contract and the judge of its performance, he shall side neither with the Owner nor with the Contractor, but shall use his powers under the contract to enforce its faithful performance by both."

1997: "The Architect, as a representative of the Owner, will visit the site at intervals appropriate to the stage of the Contractor's operations (1) to become generally familiar with and to keep the Owner informed about the progress and quality of the portion of the Work completed, (2) to endeavor to guard the Owner against defects and deficiencies in the Work, and (3) to determine in general if the Work is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will neither have control over or charge of, nor be responsible for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work..."

(1) **Based on the language above, indicate by marking one (X) in the appropriate column, which of the following statements most accurately reflects the role played by the Architect in the **ROLE OF THE ARCHITECT** for each of the specified years (for example, if based on the comparative language above you conclude that under the 1951 provision the Architect "plays a primary lead role during the construction phase", place an "X" on line 1 in the 1951 column; and, if you conclude that under the 1997 provision the Architect "plays an advisory role during the construction phase", place an "X" on line 5 in the 1997 column):**

THE ROLE OF THE ARCHITECT	IN THE YEAR OF:	
	1951	1997
1. The Architect plays a primary lead role during the construction phase	(9)	(3)
2. The Architect plays a secondary support role during the construction phase	(5)	(5)
3. The Architect plays a supervisory role during the construction phase	(8)	(3)
4. The Architect serves as a reviewer during the construction phase		(6)
5. The Architect plays an advisory role during the construction phase		(10)
6. The Architect plays a quasi-judicial role during the construction phase	(8)	(3)

(2) **Identify to what extent you agree or disagree with the following statements comparing the contract language from 1951 and 1997. (Check only one box)**

i. **The evolution of the AIA A201 **ROLE OF THE ARCHITECT** provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.**

- Strongly Agree **(17)**
- Somewhat Agree **(13)**
- Neither Agree nor Disagree **(1)**
- Somewhat Disagree **(1)**
- Strongly Disagree
- No Opinion

ii. **The evolution of the AIA A201 **ROLE OF THE ARCHITECT** provision from 1951 to 1997 has directly affected the function of the Architect during the construction process.**

- Strongly Agree **(18)**
- Somewhat Agree **(12)**
- Neither Agree nor Disagree **(1)**
- Somewhat Disagree **(1)**
- Strongly Disagree
- No Opinion

b. DISPUTE RESOLUTION

Study the following contract language concerning **DISPUTE RESOLUTION** from AIA 201 for the years indicated:

1951: "The Architect shall, within a reasonable time, make decisions on all claims of the Owner or Contractor and all other matters relating to the execution and progress of the work or the interpretation of the Contract Documents. The Architect's decision, in matters relating to artistic effect, shall be final, if within the terms of the Contract Documents. Except as above or as otherwise expressly provided in the Contract Documents, all the Architect's decisions are subject to arbitration."

1997: "The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness...Interpretations and decision of the Architect will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and initial decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions so rendered in good faith...Any Claim arising out of or related to the Contract, ... shall...be subject to mediation as a condition precedent to arbitration or the institution of legal or equitable proceedings by either party. The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be in accordance with the Construction Industry Mediation Rules of the American Arbitration Association currently in effect."

- (1) Based on the language above, indicate by marking **one (X)** in the appropriate column, which of the following statements most accurately reflects the role played by the Architect in the **DISPUTE RESOLUTION** for **each** of the specified years (for example, if based on the comparative language above you conclude that under the 1951 provision the Architect "plays a primary lead role during the construction phase", place an "X" on line 1 in the 1951 column; and, if you conclude that under the 1997 provision the Architect "plays an advisory role during the construction phase", place an "X" on line 5 in the 1997 column):

Incorrect answer: (2)	IN THE YEAR OF:	
	1951	1997
THE ROLE OF THE ARCHITECT		
1. The Architect plays a primary lead role in dispute resolution during the construction phase	(12)	(4)
2. The Architect plays a secondary support role in dispute resolution during the construction phase	(8)	(4)
3. The Architect plays a supervisory role in dispute resolution during the construction phase		(4)
4. The Architect serves as a reviewer role in dispute resolution during the construction phase	(5)	(3)
5. The Architect plays an advisory role in dispute resolution during the construction phase		(9)
6. The Architect plays a quasi-judicial role in dispute resolution during the construction phase	(5)	(6)

- (2) Identify to what extent you agree or disagree with the following statements regarding comparing the contract language from 1951 and 1997. (Check only one box)

- i. The evolution of the AIA A201 **DISPUTE RESOLUTION** provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

- Strongly Agree (12)
- Somewhat Agree (11)
- Neither Agree nor Disagree (1)
- Somewhat Disagree (6)
- Strongly Disagree (2)
- No Opinion

- ii. The evolution of the AIA A201 **DISPUTE RESOLUTION** provision from 1951 to 1997 has directly affected the function of the Architect during the construction process.

- Strongly Agree (12)
- Somewhat Agree (11)
- Neither Agree nor Disagree (2)
- Somewhat Disagree (5)
- Strongly Disagree (2)
- No Opinion

c. OWNERSHIP OF DOCUMENTS

Study the following contract language concerning **OWNERSHIP OF DOCUMENTS** from AIA 201 for the years indicated:

1951: "All Drawings, Specifications and copies thereof furnished by the Architect are his property. They are not to be used on other work and, with the exception of the signed Contract set, are to be returned to him on request, at the completion of the work. All models are the property of the Owner."

1997: "The Drawings, Specifications and other documents, including those in electronic form, prepared by the Architect and the Architect's consultants are Instruments of Service through which the Work to be executed by the Contractor is described...The Drawings, Specifications and other documents prepared by the Architect and the Architect's consultants, and copies thereof furnished to the Contractor, are for use solely with respect to this Project. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or material or equipment supplier on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants."

(1) Based on the language above, indicate by marking one (X) in the appropriate column, which of the following statements most accurately reflects the role played by the Architect in the OWNERSHIP OF DOCUMENTS for each of the specified years (for example, if based on the comparative language above you conclude that under the 1951 provision the Architect "plays a primary lead role during the construction phase", place an "X" on line 1 in the 1951 column; and, if you conclude that under the 1997 provision the Architect "plays an advisory role during the construction phase", place an "X" on line 5 in the 1997 column):

Incorrect answer: (2), No response: (1)	IN THE YEAR OF:	
	1951	1997
THE ROLE OF THE ARCHITECT		
1. The Architect plays a primary lead role in ownership of documents during the construction phase	(29)	(12)
2. The Architect plays a secondary support role in ownership of documents during the construction phase		(9)
3. The Architect plays a supervisory role in ownership of documents during the construction phase		(2)
4. The Architect serves as a reviewer role in ownership of documents during the construction phase		
5. The Architect plays an advisory role in ownership of documents during the construction phase		(4)
6. The Architect plays a quasi-judicial role in ownership of documents during the construction phase		(2)

(2) Identify to what extent you agree or disagree with the following statements comparing the contract language from 1951 and 1997. (Check only one box)

i. The evolution of the AIA A201 OWNERSHIP OF DOCUMENTS provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

- Strongly Agree **(5)**
- Somewhat Agree **(5)**
- Neither Agree nor Disagree **(5)**
- Somewhat Disagree **(6)**
- Strongly Disagree **(10)**
- No Opinion **(1)**

ii. The evolution of the AIA A201 OWNERSHIP OF DOCUMENTS provision from 1951 to 1997 has directly affected the function of the Architect during the construction process.

- Strongly Agree **(4)**
- Somewhat Agree **(4)**
- Neither Agree nor Disagree **(4)**
- Somewhat Disagree **(10)**
- Strongly Disagree **(9)**
- No Opinion **(1)**

d. FINAL PAYMENT

Study the following contract language concerning **FINAL PAYMENT** from AIA 201 for the years indicated:

1966: "Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when he finds the Work acceptable under the Contract Documents and the Contract fully performed, he will promptly issue a final Certificate for Payment stating that to the best of his knowledge, information and belief, and on the basis of his observations and inspections, the Work has been completed in accordance with the terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor, and noted in said final Certificate, is due and payable."

1997: "Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when he finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of his knowledge, information and belief, and on the basis of his on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Subparagraph...as precedent to the Contractor's being entitled to final payment have been fulfilled. "

(1) Based on the language above, indicate by marking one (X) in the appropriate column, which of the following statements most accurately reflects the role played by the Architect in the FINAL PAYMENT for each of the specified years (for example, if based on the comparative language above you conclude that under the 1951 provision the Architect "plays a primary lead role during the construction phase", place an "X" on line 1 in the 1951 column; and, if you conclude that under the 1997 provision the Architect "plays an advisory role during the construction phase", place an "X" on line 5 in the 1997 column):

Incorrect response: (2)	THE ROLE OF THE ARCHITECT		IN THE YEAR OF:	
			1966	1997
	1. The Architect plays a primary lead role in final payment during the construction phase		(20)	(16)
	2. The Architect plays a secondary support role in final payment during the construction phase			
	3. The Architect plays a supervisory role in final payment during the construction phase			(3)
	4. The Architect serves as a reviewer role in final payment during the construction phase		(5)	(4)
	5. The Architect plays an advisory role in final payment during the construction phase		(5)	(7)
	6. The Architect plays a quasi-judicial role in final payment during the construction phase			

(2) Identify to what extent you agree or disagree with the following statements comparing the contract language from 1966 and 1997. (Check only one box)

i. The evolution of the AIA A201 FINAL PAYMENT provision from 1966 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

- Strongly Agree (2)
- Somewhat Agree (3)
- Neither Agree nor Disagree (5)
- Somewhat Disagree (6)
- Strongly Disagree (15)
- No Opinion (1)

ii. The evolution of the AIA A201 FINAL PAYMENT provision from 1966 to 1997 has directly affected the function of the Architect during the construction process.

- Strongly Agree (1)
- Somewhat Agree (5)
- Neither Agree nor Disagree (6)
- Somewhat Disagree (4)
- Strongly Disagree (15)
- No Opinion (1)

e. CLAIMS FOR EXTRA COST

Study the following contract language concerning **CLAIMS FOR EXTRA COST** from AIA 201 for the years indicated:

1951: "If the Contractor claims that any instructions by drawings or otherwise involve extra cost under this contract, he shall give the Architect written notice thereof within a reasonable time after the receipt of such instructions, and in any event before proceeding to execute the work, ...and the procedure shall then be as provided for changes in the work. No such claim shall be valid unless so made..."

The Architect shall, within a reasonable time, make decisions on all claims of the Owner or Contractor and on all matters relating to the execution and progress of the work or the interpretation of the Contract Documents."

1997: "Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Claims must be initiated by written notice to the Architect and the other party..."

If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the Architect on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, a reasonable allowance for overhead and profit...

Pending final determination of the total cost...amounts not in dispute for such changes in the Work shall be included in Applications for Payment accompanied by a Change Order indicating the parties' agreement with part or all of such costs. For any portion of such cost that remains in dispute, the Architect will make an interim determination for purposes of monthly certification..."

- (1) Based on the language above, indicate by marking one (X) in the appropriate column, which of the following statements most accurately reflects the role played by the Architect in the CLAIMS FOR EXTRA COST for each of the specified years (for example, if based on the comparative language above you conclude that under the 1951 provision the Architect "plays a primary lead role during the construction phase", place an "X" on line 1 in the 1951 column; and, if you conclude that under the 1997 provision the Architect "plays an advisory role during the construction phase", place an "X" on line 5 in the 1997 column):**

Incorrect answer: (2), No response: (1) THE ROLE OF THE ARCHITECT	IN THE YEAR OF:	
	1951	1997
1. The Architect plays a primary lead role in claims for extra cost during the construction phase	(15)	(14)
2. The Architect plays a secondary support role in claims for extra cost during the construction phase	(4)	(3)
3. The Architect plays a supervisory role in claims for extra cost during the construction phase		(2)
4. The Architect serves as a reviewer role in claims for extra cost during the construction phase	(5)	(3)
5. The Architect plays an advisory role in claims for extra cost during the construction phase		(5)
6. The Architect plays a quasi-judicial role in claims for extra cost during the construction phase	(5)	(2)

- (2) Identify to what extent you agree or disagree with the following statements comparing the contract language from 1951 and 1997. (Check only one box)**

- i. The evolution of the AIA A201 CLAIMS FOR EXTRA COST provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.**

- Strongly Agree **(8)**
- Somewhat Agree **(14)**
- Neither Agree nor Disagree **(2)** **No response: (1)**
- Somewhat Disagree **(4)**
- Strongly Disagree **(3)**
- No Opinion

- ii. The evolution of the AIA A201 CLAIMS FOR EXTRA COST provision from 1951 to 1997 has directly affected the function of the Architect during the construction process.**

- Strongly Agree **(7)**
- Somewhat Agree **(13)**
- Neither Agree nor Disagree **(5)** **No response: (1)**
- Somewhat Disagree **(4)**
- Strongly Disagree **(2)**
- No Opinion

f. SHOP DRAWINGS

Study the following contract language concerning **SHOP DRAWINGS** from AIA 201 for the years indicated:

1961: "The Contractor shall check and verify all field measurements and shall submit with such promptness as to cause no delay in his own work or in that of any other Contractor, three copies, check and approved by him, of all shop or setting drawings and schedules required for the work of the various trades. The Architect shall check and approve, with reasonable promptness, such schedules and drawings only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. The Contractor shall make any corrections required by the Architect, file with him two corrected copies and furnish such other copies as may be needed. The Architect's approval of such drawings or schedules shall not relieve the Contractor from responsibility for deviations from drawings or specifications, unless he has in writing called the Architect's attention to such deviations at the time of submission, and secured his written approval, nor shall it relieve him from responsibility for errors in shop drawings or schedules."

1997: "The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Sample and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors...By approving and submitting Shop Drawings...and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents..."

...If professional design services or certification by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy...The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided the Owner and Architect have specified to the contractor all performance and design criteria that such services must satisfy...

The Architect will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents... Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents...The Architect's review of the Contractor's submittal shall not relieve the Contractor of the obligations under [other paragraphs]...shall not constitute approval of safety precautions...of construction means, methods, techniques, sequences or procedures...shall not indicate approval of an assembly of which the item is a component."

- (1) Based on the language above, indicate by marking **one (X)** in the appropriate column, which of the following statements most accurately reflects the role played by the Architect in the **SHOP DRAWINGS** for **each of the specified years** (for example, if based on the comparative language above you conclude that under the 1951 provision the Architect "plays a primary lead role during the construction phase", place an "X" on line 1 in the 1951 column; and, if you conclude that under the 1997 provision the Architect "plays an advisory role during the construction phase", place an "X" on line 5 in the 1997 column):

Incorrect answer: (2)	IN THE YEAR OF:	
	1961	1997
THE ROLE OF THE ARCHITECT		
1. The Architect plays a primary lead role in shop drawings during the construction phase	(7)	
2. The Architect plays a secondary support role in shop drawings during the construction phase	(7)	(6)
3. The Architect plays a supervisory role in shop drawings during the construction phase	(2)	
4. The Architect serves as a reviewer role in shop drawings during the construction phase	(14)	(18)
5. The Architect plays an advisory role in shop drawings during the construction phase		(6)
6. The Architect plays a quasi-judicial role in shop drawings during the construction phase		

(2) Identify to what extent you agree or disagree with the following statements comparing the contract language from 1961 to 1997. *(Check only one box)*

i. The evolution of the AIA A201 SHOP DRAWINGS provision from 1961 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

- Strongly Agree (9)
- Somewhat Agree (14)
- Neither Agree nor Disagree (2)
- Somewhat Disagree (6)
- Strongly Disagree (1)
- No Opinion

ii. The evolution of the AIA A201 SHOP DRAWINGS provision from 1961 to 1997 has directly affected the function of the Architect during the construction process.

- Strongly Agree (10)
- Somewhat Agree (11)
- Neither Agree nor Disagree (2)
- Somewhat Disagree (7)
- Strongly Disagree (2)
- No Opinion

g. CHANGES IN THE WORK

Study the following contract language concerning **CHANGES IN THE WORK** from AIA 201 for the years indicated:

1951: "The Owner, without invalidating the Contract, may order extra work or make changes by altering, adding to or deducting from the work, the Contract Sum being adjusted accordingly...In giving instructions, the Architect shall have authority to make minor changes in the work, not involving extra cost, and not inconsistent with the purposes of the building, but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order from the Owner signed or countersigned by the Architect, or a written order from the Architect stating that the Owner has authorized the extra work or charge, and no claim for an addition to the Contract Sum shall be valid unless so ordered.

The value of any such extra work or change shall be determined...the Contractor, provided he received an order as above, shall proceed with the work...he shall keep and present in such form as the Architect may direct, a correct account of the cost, together with vouchers. In any case, the Architect shall certify to the amount, including reasonable allowance for overhead and profit, due to the Contractor. Pending final determination of value, payments on account of changes shall be made on the Architect's certificate."

1997: "Change in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work... A Change Order shall be based upon agreement among the Owner, Contractor and Architect; A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect, stating their agreement upon all of the following: 1. Change in Work, 2. The amount of the adjustment, if any, in the Contract Sum; and 3. The extent of the adjustment, if any, in the Contract Time.

A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both...A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order...Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time. A Construction Change Directive signed by the Contractor indicated the agreement of the Contractor therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the Architect on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, a reasonable allowance for overhead and profit...

Pending final determination of the total cost of a Construction Change Directive to the Owner, amounts not in dispute for such changes in the Work shall be included in Applications for Payment...For any portion of such cost that remains in dispute, the Architect will make an interim determination for purposes of monthly certification for payment for those costs.

- (1) Based on the language above, indicate by marking one (X) in the appropriate column, which of the following statements most accurately reflects the role played by the Architect in the **CHANGES IN THE WORK** for each of the specified years** (for example, if based on the comparative language above you conclude that under the 1951 provision the Architect "plays a primary lead role during the construction phase", place an "X" on line 1 in the 1951 column, and, if you conclude that under the 1997 provision the Architect "plays an advisory role during the construction phase", place an "X" on line 5 in the 1997 column):

Incorrect answers: (2) THE ROLE OF THE ARCHITECT	IN THE YEAR OF:	
	1951	1997
1. The Architect plays a primary lead role in changes in the work during the construction phase	(11)	(9)
2. The Architect plays a secondary support role in changes in the work during the construction phase	(6)	(7)
3. The Architect plays a supervisory role in changes in the work during the construction phase	(3)	
4. The Architect serves as a reviewer role in changes in the work during the construction phase	(4)	(2)
5. The Architect plays an advisory role in changes in the work during the construction phase	(3)	(8)
6. The Architect plays a quasi-judicial role in changes in the work during the construction phase	(3)	(4)

A RESEARCH STUDY: An Investigation of Change in the AIA A201

(2) Identify to what extent you agree or disagree with the following statements comparing the contract language from 1951 to 1997. *(Check only one box)*

i. The evolution of the AIA A201 **CHANGES IN THE WORK** provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

- Strongly Agree (9)
- Somewhat Agree (11)
- Neither Agree nor Disagree (3)
- Somewhat Disagree (6)
- Strongly Disagree (3)
- No Opinion

ii. The evolution of the AIA A201 **CHANGES IN THE WORK** provision from 1951 to 1997 has directly affected the function of the Architect during the construction process.

- Strongly Agree (6)
- Somewhat Agree (14)
- Neither Agree nor Disagree (3)
- Somewhat Disagree (5)
- Strongly Disagree (4)
- No Opinion

Sent out = 75
Wrong address = 4
Potential respondents = 71
Returned = 35
Non-responses = 3
Respondents = 32

Thank you for taking the time to complete this questionnaire. Upon receipt of this questionnaire to the researcher, you may be contacted to arrange for a brief face-to-face or phone interview at your convenience to complete the research study. Your assistance in providing this information is very much appreciated! If there is anything else you would like to tell us about this survey or its subject matter, please do so in the space provided below.

Please return your completed questionnaire in the envelope provided

by Friday, March 12, 2004 to:

*Roxene M. Thompson
Ph.D. Candidate
Virginia Tech
2112 New Hampshire Ave. NW, Apt. 415
Washington, DC 20009-6527*

APPENDIX C3 - SCALE OF RESPONSES

SURVEY QUESTIONS AND SCALE OF RESPONSES

PHASE II

BACKGROUND

Q1 => Which of the following professional categories best describes your primary role in the construction industry?

- A = Architect
- G = General Contractor
- E = Engineer
- C = Construction Manager
- D = Academic
- L = Lawyer
- O = Owner
- R = Other

Q2 => Which sector of the construction industry do you primarily represent or provide services to?

- PV = Private Sector
- PB = Public Sector

Q3 => Of the following identified areas of the industry, which one best identifies the type of work you are primarily engaged in?

- C = Commercial
- R = Residential
- E = Claims Analysis/Expert Witness
- T = Transportation/Infrastructure
- G = Governmental
- I = Institutional
- L = Legal
- O = Other

Q4 => How many years have you worked in the construction industry?

- 1 = < 10
- 2 = 11 - 15
- 3 = 16 - 20
- 4 = 21 - 25
- 5 = 26 - 30
- 6 = 31 - 35
- 7 = 36 >

SURVEY QUESTIONS AND SCALE OF RESPONSES

PHASE II

USE OF AIA A201

Q5 => Are you currently using, having your previously used, or are you otherwise familiar with documents from the AIA A201 "family" of contract documents?

- 1 = Yes
- 0 = No

Q6 => Considering your use of or familiarity with AIA contract documents, are you using or have you used these documents "as printed," or are you making or have you made modifications to these documents? (Check all the boxes that apply)

- 1 = Using or used as printed
- 2 = Using or used with minor modifications
- 3 = Using or used with major modifications
- 4 = Using or used as a "model" for my own and/or the owner
- 5 = Using or used in combination with my own documents and/or my client's documents
- 0 = no response

KEY AIA A201 PROVISIONS

ROLE OF THE ARCHITECT

Q7 => Based on the contract language provided, the following statement most accurately reflects the **1951** role played by the Architect in the **ROLE OF THE ARCHITECT** contract provision...

- ACTIVE 1 = The Architect plays a quasi-judicial role during the construction phase.
- ACTIVE 2 = The Architect plays a primary lead role during the construction phase.
- MEDIUM 3 = The Architect plays a supervisory role during the construction phase.
- MEDIUM 4 = The Architect plays a secondary support role during the construction phase.
- PASSIVE 5 = The Architect serves as a reviewer during the construction phase.
- PASSIVE 6 = The Architect plays an advisory role during the construction phase.
- 0 = Incorrect answer/no response

Q8 => Based on the contract language provided, the following statement most accurately reflects the **1997** role played by the Architect in the **ROLE OF THE ARCHITECT** contract provision...

- ACTIVE 1 = The Architect plays a quasi-judicial role during the construction phase.
- ACTIVE 2 = The Architect plays a primary lead role during the construction phase.
- MEDIUM 3 = The Architect plays a supervisory role during the construction phase.
- MEDIUM 4 = The Architect plays a secondary support role during the construction phase.
- PASSIVE 5 = The Architect serves as a reviewer during the construction phase.
- PASSIVE 6 = The Architect plays an advisory role during the construction phase.
- 0 = Incorrect answer/no response

SURVEY QUESTIONS AND SCALE OF RESPONSES

PHASE II

Q9 => The evolution of the AIA A201 **ROLE OF THE ARCHITECT** provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

- 1 = Strongly Agree
- 2 = Somewhat Agree
- 3 = Neither Agree nor Disagree
- 4 = Somewhat Disagree
- 5 = Strongly Disagree
- 0 = No Opinion

Q10 => The evolution of the AIA A201 **ROLE OF THE ARCHITECT** provision from 1951 to 1997 has directly affected the function of the Architect.

- 1 = Strongly Agree
- 2 = Somewhat Agree
- 3 = Neither Agree nor Disagree
- 4 = Somewhat Disagree
- 5 = Strongly Disagree
- 0 = No Opinion

DISPUTE RESOLUTION

Q11 => Based on the contract language provided, the following statement most accurately reflects the **1966** role played by the Architect in the **DISPUTE RESOLUTION** contract provision...

- ACTIVE 1 = The Architect plays a quasi-judicial role during the construction phase.
- ACTIVE 2 = The Architect plays a primary lead role during the construction phase.
- MEDIUM 3 = The Architect plays a supervisory role during the construction phase.
- MEDIUM 4 = The Architect plays a secondary support role during the construction phase.
- PASSIVE 5 = The Architect serves as a reviewer during the construction phase.
- PASSIVE 6 = The Architect plays an advisory role during the construction phase.
- 0 = Incorrect answer/no response

Q12 => Based on the contract language provided, the following statement most accurately reflects the **1997** role played by the Architect in the **DISPUTE RESOLUTION** contract provision...

- ACTIVE 1 = The Architect plays a quasi-judicial role during the construction phase.
- ACTIVE 2 = The Architect plays a primary lead role during the construction phase.
- MEDIUM 3 = The Architect plays a supervisory role during the construction phase.
- MEDIUM 4 = The Architect plays a secondary support role during the construction phase.
- PASSIVE 5 = The Architect serves as a reviewer during the construction phase.
- PASSIVE 6 = The Architect plays an advisory role during the construction phase.
- 0 = Incorrect answer/no response

SURVEY QUESTIONS AND SCALE OF RESPONSES

PHASE II

Q13 => The evolution of the AIA A201 **DISPUTE RESOLUTION** provision from 1966 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

- 1 = Strongly Agree
- 2 = Somewhat Agree
- 3 = Neither Agree nor Disagree
- 4 = Somewhat Disagree
- 5 = Strongly Disagree
- 0 = No Opinion

Q14 => The evolution of the AIA A201 **DISPUTE RESOLUTION** provision from 1966 to 1997 has directly affected the function of the Architect.

- 1 = Strongly Agree
- 2 = Somewhat Agree
- 3 = Neither Agree nor Disagree
- 4 = Somewhat Disagree
- 5 = Strongly Disagree
- 0 = No Opinion

OWNERSHIP OF DOCUMENTS

Q15 => Based on the contract language provided, the following statement most accurately reflects the **1951** role played by the Architect in the **OWNERSHIP OF DOCUMENTS** contract provision...

- ACTIVE 1 = The Architect plays a quasi-judicial role during the construction phase.
- ACTIVE 2 = The Architect plays a primary lead role during the construction phase.
- MEDIUM 3 = The Architect plays a supervisory role during the construction phase.
- MEDIUM 4 = The Architect plays a secondary support role during the construction phase.
- PASSIVE 5 = The Architect serves as a reviewer during the construction phase.
- PASSIVE 6 = The Architect plays an advisory role during the construction phase.
- 0 = Incorrect answer/no response

Q16 => Based on the contract language provided, the following statement most accurately reflects the **1997** role played by the Architect in the **OWNERSHIP OF DOCUMENTS** contract provision...

- ACTIVE 1 = The Architect plays a quasi-judicial role during the construction phase.
- ACTIVE 2 = The Architect plays a primary lead role during the construction phase.
- MEDIUM 3 = The Architect plays a supervisory role during the construction phase.
- MEDIUM 4 = The Architect plays a secondary support role during the construction phase.
- PASSIVE 5 = The Architect serves as a reviewer during the construction phase.
- PASSIVE 6 = The Architect plays an advisory role during the construction phase.
- 0 = Incorrect answer/no response

SURVEY QUESTIONS AND SCALE OF RESPONSES

PHASE II

Q17 => The evolution of the AIA A201 **OWNERSHIP OF DOCUMENTS** provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

- 1 = Strongly Agree
- 2 = Somewhat Agree
- 3 = Neither Agree nor Disagree
- 4 = Somewhat Disagree
- 5 = Strongly Disagree
- 0 = No Opinion

Q18 => The evolution of the AIA A201 **OWNERSHIP OF DOCUMENTS** provision from 1951 to 1997 has directly affected the function of the Architect.

- 1 = Strongly Agree
- 2 = Somewhat Agree
- 3 = Neither Agree nor Disagree
- 4 = Somewhat Disagree
- 5 = Strongly Disagree
- 0 = No Opinion

FINAL PAYMENT

Q19 => Based on the contract language provided, the following statement most accurately reflects the **1951** role played by the Architect in the **FINAL PAYMENT** contract provision...

- ACTIVE 1 = The Architect plays a quasi-judicial role during the construction phase.
- ACTIVE 2 = The Architect plays a primary lead role during the construction phase.
- MEDIUM 3 = The Architect plays a supervisory role during the construction phase.
- MEDIUM 4 = The Architect plays a secondary support role during the construction phase.
- PASSIVE 5 = The Architect serves as a reviewer during the construction phase.
- PASSIVE 6 = The Architect plays an advisory role during the construction phase.
- 0 = Incorrect answer/no response

Q20 => Based on the contract language provided, the following statement most accurately reflects the **1997** role played by the Architect in the **FINAL PAYMENT** contract provision...

- ACTIVE 1 = The Architect plays a quasi-judicial role during the construction phase.
- ACTIVE 2 = The Architect plays a primary lead role during the construction phase.
- MEDIUM 3 = The Architect plays a supervisory role during the construction phase.
- MEDIUM 4 = The Architect plays a secondary support role during the construction phase.
- PASSIVE 5 = The Architect serves as a reviewer during the construction phase.
- PASSIVE 6 = The Architect plays an advisory role during the construction phase.
- 0 = Incorrect answer/no response

SURVEY QUESTIONS AND SCALE OF RESPONSES

PHASE II

Q21 => The evolution of the AIA A201 **FINAL PAYMENT** provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

- 1 = Strongly Agree
- 2 = Somewhat Agree
- 3 = Neither Agree nor Disagree
- 4 = Somewhat Disagree
- 5 = Strongly Disagree
- 0 = No Opinion

Q22 => The evolution of the AIA A201 **FINAL PAYMENT** provision from 1951 to 1997 has directly affected the function of the Architect.

- 1 = Strongly Agree
- 2 = Somewhat Agree
- 3 = Neither Agree nor Disagree
- 4 = Somewhat Disagree
- 5 = Strongly Disagree
- 0 = No Opinion

CLAIMS FOR EXTRA COST

Q23 => Based on the contract language provided, the following statement most accurately reflects the **1951** role played by the Architect in the **CLAIMS FOR EXTRA COST** contract provision...

- ACTIVE 1 = The Architect plays a quasi-judicial role during the construction phase.
- ACTIVE 2 = The Architect plays a primary lead role during the construction phase.
- MEDIUM 3 = The Architect plays a supervisory role during the construction phase.
- MEDIUM 4 = The Architect plays a secondary support role during the construction phase.
- PASSIVE 5 = The Architect serves as a reviewer during the construction phase.
- PASSIVE 6 = The Architect plays an advisory role during the construction phase.
- 0 = Incorrect answer/no response

Q24 => Based on the contract language provided, the following statement most accurately reflects the **1997** role played by the Architect in the **CLAIMS FOR EXTRA COST** contract provision...

- ACTIVE 1 = The Architect plays a quasi-judicial role during the construction phase.
- ACTIVE 2 = The Architect plays a primary lead role during the construction phase.
- MEDIUM 3 = The Architect plays a supervisory role during the construction phase.
- MEDIUM 4 = The Architect plays a secondary support role during the construction phase.
- PASSIVE 5 = The Architect serves as a reviewer during the construction phase.
- PASSIVE 6 = The Architect plays an advisory role during the construction phase.
- 0 = Incorrect answer/no response

SURVEY QUESTIONS AND SCALE OF RESPONSES

PHASE II

Q25 => The evolution of the AIA A201 **CLAIMS FOR EXTRA COST** provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

- 1 = Strongly Agree
- 2 = Somewhat Agree
- 3 = Neither Agree nor Disagree
- 4 = Somewhat Disagree
- 5 = Strongly Disagree
- 0 = No Opinion

Q26 => The evolution of the AIA A201 **CLAIMS FOR EXTRA COST** provision from 1951 to 1997 has directly affected the function of the Architect.

- 1 = Strongly Agree
- 2 = Somewhat Agree
- 3 = Neither Agree nor Disagree
- 4 = Somewhat Disagree
- 5 = Strongly Disagree

SHOP DRAWINGS

Q27 => Based on the contract language provided, the following statement most accurately reflects the **1961** role played by the Architect in the **SHOP DRAWINGS** contract provision...

- ACTIVE 1 = The Architect plays a quasi-judicial role during the construction phase.
- ACTIVE 2 = The Architect plays a primary lead role during the construction phase.
- MEDIUM 3 = The Architect plays a supervisory role during the construction phase.
- MEDIUM 4 = The Architect plays a secondary support role during the construction phase.
- PASSIVE 5 = The Architect serves as a reviewer during the construction phase.
- PASSIVE 6 = The Architect plays an advisory role during the construction phase.
- 0 = Incorrect answer/no response

Q28 => Based on the contract language provided, the following statement most accurately reflects the **1997** role played by the Architect in the **SHOP DRAWINGS** contract provision...

- ACTIVE 1 = The Architect plays a quasi-judicial role during the construction phase.
- ACTIVE 2 = The Architect plays a primary lead role during the construction phase.
- MEDIUM 3 = The Architect plays a supervisory role during the construction phase.
- MEDIUM 4 = The Architect plays a secondary support role during the construction phase.
- PASSIVE 5 = The Architect serves as a reviewer during the construction phase.
- PASSIVE 6 = The Architect plays an advisory role during the construction phase.
- 0 = Incorrect answer/no response

SURVEY QUESTIONS AND SCALE OF RESPONSES

PHASE II

Q29 => The evolution of the AIA A201 **SHOP DRAWINGS** provision from 1961 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

- 1 = Strongly Agree
- 2 = Somewhat Agree
- 3 = Neither Agree nor Disagree
- 4 = Somewhat Disagree
- 5 = Strongly Disagree
- 0 = No Opinion

Q30 => The evolution of the AIA A201 **SHOP DRAWINGS** provision from 1961 to 1997 has directly affected the function of the Architect.

- 1 = Strongly Agree
- 2 = Somewhat Agree
- 3 = Neither Agree nor Disagree
- 4 = Somewhat Disagree
- 5 = Strongly Disagree
- 0 = No Opinion

CHANGES IN THE WORK

Q31 => Based on the contract language provided, the following statement most accurately reflects the **1951** role played by the Architect in the **CHANGES IN THE WORK** contract provision...

- ACTIVE 1 = The Architect plays a quasi-judicial role during the construction phase.
- ACTIVE 2 = The Architect plays a primary lead role during the construction phase.
- MEDIUM 3 = The Architect plays a supervisory role during the construction phase.
- MEDIUM 4 = The Architect plays a secondary support role during the construction phase.
- PASSIVE 5 = The Architect serves as a reviewer during the construction phase.
- PASSIVE 6 = The Architect plays an advisory role during the construction phase.
- 0 = Incorrect answer/no response

Q32 => Based on the contract language provided, the following statement most accurately reflects the **1997** role played by the Architect in the **CHANGES IN THE WORK** contract provision...

- ACTIVE 1 = The Architect plays a quasi-judicial role during the construction phase.
- ACTIVE 2 = The Architect plays a primary lead role during the construction phase.
- MEDIUM 3 = The Architect plays a supervisory role during the construction phase.
- MEDIUM 4 = The Architect plays a secondary support role during the construction phase.
- PASSIVE 5 = The Architect serves as a reviewer during the construction phase.
- PASSIVE 6 = The Architect plays an advisory role during the construction phase.
- 0 = Incorrect answer/no response

SURVEY QUESTIONS AND SCALE OF RESPONSES

PHASE II

Q33 => The evolution of the AIA A201 **CHANGES IN THE WORK** provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

- 1 = Strongly Agree
- 2 = Somewhat Agree
- 3 = Neither Agree nor Disagree
- 4 = Somewhat Disagree
- 5 = Strongly Disagree
- 0 = No Opinion

Q34 => The evolution of the AIA A201 **CHANGES IN THE WORK** provision from 1951 to 1997 has directly affected the function of the Architect.

- 1 = Strongly Agree
- 2 = Somewhat Agree
- 3 = Neither Agree nor Disagree
- 4 = Somewhat Disagree
- 5 = Strongly Disagree
- 0 = No Opinion

APPENDIX C4 - TALLY OF RESPONSE

TALLY OF PARTICIPANTS' RESPONSES

PHASE II

R e s p o n d e n t	P a r t i c i p a n t	BACKGROUND				USE OF AIA DOC		A. ROLE OF ARCH				B. DISP RESOLUTION			C. DOC OWNERSHIP				
		Q1	Q2	Q3	Q4	Q5	Q6	A (1)		A (2i)	A (2ii)	B (1)		B (2i)	B (2ii)	C (1)		C (2i)	C (2ii)
				Type	Y l e n d r u s s t i r y	F a w n m i t r a c t A D o c	C o n s e r v a t i o n A A c	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
				of Work	irny	y	c	1951	1997			1951	1997			1951	1997		
7	1	C	PB	G	7	1	5	1	6	2	2	1	1	4	4	2	4	3	3
8	2	E		O	7	1	5	2	3	2	2	5	1	2	2	0	0	2	4
13	3	C	PV	C	6	1	3	3	6	1	1	4	6	2	2	2	6	2	4
14	4	G	PV	C	7	1	2	4	6	4	4	4	6	4	2	2	1	4	4
15	5	G	PV	C	7	1	1,2	2	4	2	1	2	4	1	1	2	4	3	3
17	6	C	PV	O	2	1	2	2	4	1	1	1	1	1	1	0	0	1	1
18	7	G	PB	C	7	1	3	2	5	1	1	4	3	1	1	2	4	2	2
19	8	G	PV	I	7	1	2	2	3	2	2	2	3	2	2	2	2	3	3
20	9	G	PV	C	4	1	2,3,4,5	3	3	2	1	4	4	2	2	2	6	5	5
21	10	G	PV	R	7	1	2	3	6	1	1	4	6	1	1	2	3	5	5
25	11	G	PB	G	3	1	1, 2, 5	2	1	1	1	2	6	1	1	2	2	5	5
27	12	L	PB	L	3	1	2, 3, 4, 5	1	2	2	2	5	1	4	4	2	2	5	5
28	13	L	PV	L	5	1	1,2,3,4,5	1	6	1	1	2	5	5	5	2	2	3	3
29	14	L	PV	L	4	1	3	2	4	1	1	2	3	4	2	2	2	5	5
35	15	L	PV	L	4	1	3	3	5	2	2	4	6	2	2	2	1	4	2
37	16	L	PV	C	6	1	1,2,3,4,5	1	2	1	1	5	1	1	1	2	6	4	1
39	17	L	PV	L	6	1	3, 5	1	2	1	1	2	4	1	2	2	4	4	4
42	18	A	PV	C	7	1	3	1	4	2	2	2	4	1	1	2	4	1	4
43	19	L	PV	L	2	1	3	3	5	1	1	4	6	2	2	2	2	5	5
48	20	L	PV	L	4	1	2, 3, 5	2	6	2	2	5	5	4	4	2	4	2	4
53	21	R	PB	E	7	1	5	2	4	1	1	1	3	1	1	2	4	1	4

TALLY OF PARTICIPANTS' RESPONSES

PHASE II

R	e	p	D. FINAL PYMT				E. CLAIMS			F. SHOP DWGS				G. CHG IN WORK				
			D (1)		D (2i)	D (2ii)	E (1)		E (2i)	E (2ii)	F (1)		F (2i)	F (2ii)	G (1)		G (2i)	G (2ii)
			Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33	Q34
			1951	1997			1951	1997			1951	1997			1951	1997		
7	1	5	5	3	3	2	2	4	4	5	5	4	4	4	4	4	4	
8	2	0	0	5	5	0	0	0	0	5	6	2	2	1	1	2	2	
13	3	2	2	5	5	4	3	2	2	4	5	2	1	4	4	1	1	
14	4	6	6	4	4	5	6	4	4	5	5	4	4	5	6	2	2	
15	5	2	2	4	4	1	1	2	2	3	5	1	1	4	1	2	2	
17	6	5	5	3	3	1	1	2	2	5	5	1	1	4	4	1	1	
18	7	2	6	2	2	2	2	1	1	2	5	1	1	2	2	3	3	
19	8	2	2	5	5	2	2	2	2	2	5	1	1	2	2	2	2	
20	9	2	2	5	5	2	4	4	4	2	5	2	1	2	2	5	5	
21	10	5	5	5	5	5	6	5	5	5	5	1	1	1	1	5	5	
25	11	2	2	2	2	2	2	1	2	4	5	2	2	2	4	1	2	
27	12	2	2	5	5	2	2	2	2	5	5	2	2	2	6	2	2	
28	13	2	6	5	5	1	2	2	1	5	6	2	2	3	2	5	5	
29	14	2	2	4	4	5	5	2	2	4	4	4	4	2	2	4	2	
35	15	2	3	4	2	0	0	1	1	0	0	2	2	0	0	1	1	
37	16	2	3	1	3	0	0	1	1	0	0	1	1	0	0	1	1	
39	17	2	2	4	4	2	6	2	3	2	6	2	2	2	4	2	2	
42	18	2	2	4	3	2	4	1	2	5	6	1	1	2	2	1	1	
43	19	2	6	5	5	4	3	5	5	5	6	5	5	2	2	4	4	
48	20	6	6	5	5	2	2	4	4	5	5	4	5	4	4	2	4	
53	21	0	0	0	0	2	2	1	1	5	5	2	2	4	4	1	2	

TALLY OF PARTICIPANTS' RESPONSES

PHASE II

R e s p o n d e n t	P a r t i c i p a n t	BACKGROUND				USE OF AIA DOC		A. ROLE OF ARCH				B. DISP RESOLUTION			C. DOC OWNERSHIP				
		Q1	Q2	Q3	Q4	Q5	Q6	A (1)		A (2i)	A (2ii)	B (1)		B (2i)	B (2ii)	C (1)		C (2i)	C (2ii)
								Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
		Occupation	Industry	Type of Work	Years in Industry	Conduct AIA Doc	Conduct AIA Doc	1951	1997			1951	1997			1951	1997		
55	22	L	PV	L	7	1	1, 2, 3, 5	3	6	1	1	2	1	2	3	2	2	5	5
59	23	E	PB	I	6	1	1, 2, 3	1	6	2	2	5	5	2	2	2	4	2	2
60	24	C	PV	E	6	1	2	4	5	3	3	2	2	5	5	2	2	4	4
62	25	A	PV	O	3	1	2	4	1	2	2	2	2	4	4	2	2	5	5
64	26	E	PB	T	7	0	0	3	6	1	1	2	6	1	1	2	3	0	0
65	27	R	PB	G	4	0	0	0	0	2	2	0	0	2	2	2	4	5	4
66	28	O	PB	G	6	0	0	0	0	1	1	0	0	1	1	0	0	1	1
67	29	C	PB	T	5	0	0	3	6	2	2	4	6	2	1	2	6	4	4
68	30	C	PB	I	6	1	2	4	5	1	1	2	6	1	1	2	2	1	1
69	31	C	PB	T	5	1	2	1	5	1	1	1	2	2	4	2	2	5	5
72	32	C	PB	E	5	1	3, 5	4	1	1	2	1	2	3	3	2	2	3	2

TALLY OF PARTICIPANTS' RESPONSES

PHASE II

R	e	s	p	o	n	d	e	D. FINAL PYMT				E. CLAIMS			F. SHOP DWGS				G. CHG IN WORK				
								D (1)		D (2i)	D (2ii)	E (1)		E (2i)	E (2ii)	F (1)		F (2i)	F (2ii)	G (1)		G (2i)	G (2ii)
								Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33	Q34
								1951	1997			1951	1997			1951	1997			1951	1997		
55	22	5	5	5	5	5	5	5	2	5	5	2	4	6	6	4	4						
59	23	2	6	3	3	4	2	2	2	4	4	2	2	6	6	2	2						
60	24	2	2	5	5	2	2	2	3	4	5	2	2	1	1	4	5						
62	25	6	2	5	5	2	6	3	3	3	4	4	4	5	6	4	2						
64	26	2	3	2	2	2	6	1	1	4	4	3	3	3	5	2	2						
65	27	6	2	5	5	5	2	3	3	4	4	3	3	5	2	3	3						
66	28	2	6	1	1	2	4	1	1	2	5	2	2	2	6	2	2						
67	29	2	2	5	5	2	5	2	2	2	6	1	2	5	6	2	2						
68	30	5	2	3	3	4	2	2	2	5	5	1	1	6	6	1	2						
69	31	2	2	5	5	1	2	2	2	5	5	4	4	2	2	1	1						
72	32	6	2	3	2	1	2	2	3	2	4	2	4	3	5	3	3						

APPENDIX C5 - RESULTS OF STATISTICAL ANALYSIS

T-Test

Q7: Based on the contract language provided, the statement most accurately reflects the 1951 role played by the architect in the Role of the Architect contract provision...

Q8: Based on the contract language provided, the statement most accurately reflects the 1997 role played by the architect in the Role of the Architect contract provision...

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Q7	2.19	32	1.176	.208
Q8	4.00	32	1.967	.348

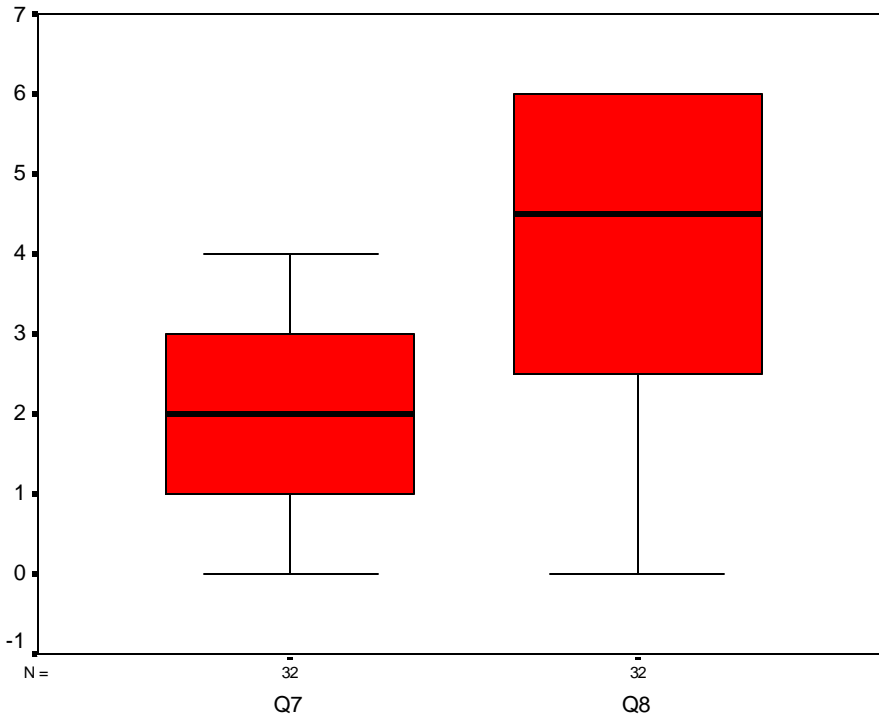
Paired Samples Test

	Paired Differences	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
					Pair 1 Q7 - Q8	-1.81			

Wilcoxon Signed Ranks Test

Test Statistics

	Q8 - Q7
Z	-3.770
Asymp. Sig. (2-tailed)	.000



Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

T-Test

Q9: The evolution of the AIA A201 Role of the Architect provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Q9	32	1.56	.716	.127

One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q9	-11.363	31	.000	-1.44	-1.70	-1.18

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

T-Test

Q10: The evolution of the AIA A201 Role of the Architect provision from 1951 to 1997 has directly affected the function of the architect.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Q10	32	1.53	.718	.127

One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q10	-11.576	31	.000	-1.47	-1.73	-1.21

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

T-Test

Q11: Based on the contract language provided, the statement most accurately reflects the 1966 role played by the architect in the Dispute Resolution contract provision...

Q12: Based on the contract language provided, the statement most accurately reflects the 1997 role played by the architect in the Dispute Resolution contract provision...

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Q11	2.69	32	1.554	.275
Q12	3.47	32	2.094	.370

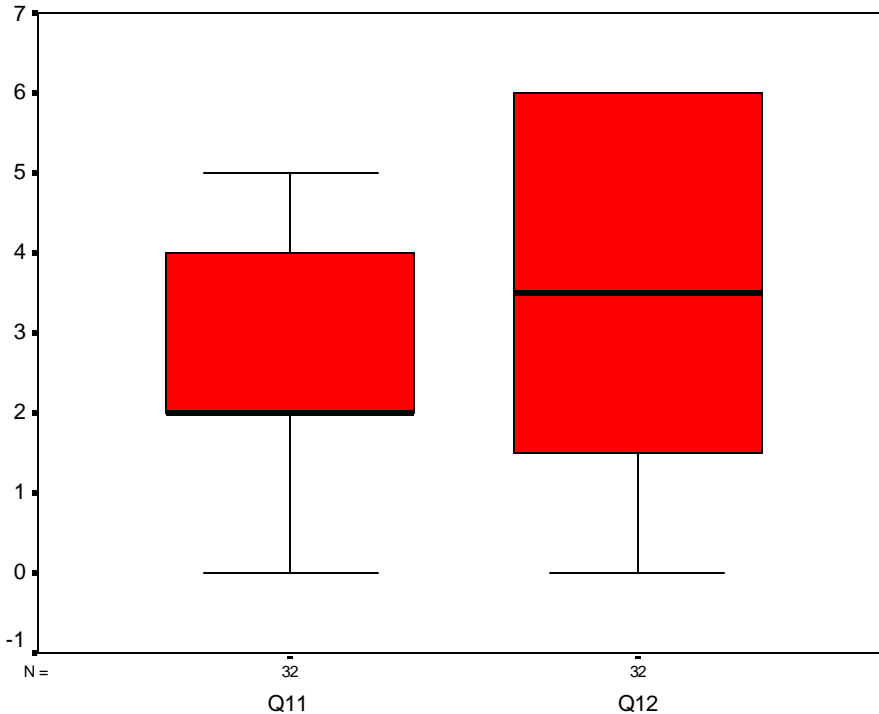
Paired Samples Test

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	Q11 - Q12	-.78	2.059	.364	-1.52	-.04	-2.146	31	.040

Wilcoxon Signed Ranks Test

Test Statistics

	Q12 - Q11
Z	-2.143
Asymp. Sig. (2-tailed)	.032



Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

T-Test

Q13: The evolution of the AIA A201 Dispute Resolution provision from 1966 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Q13	32	2.22	1.313	.232

One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q13	-3.365	31	.002	-.78	-1.25	-.31

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

T-Test

Q14: The evolution of the AIA A201 Dispute Resolution provision from 1966 to 1997 has directly affected the function of the architect.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Q14	32	2.19	1.281	.226

One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q14	-3.588	31	.001	-.81	-1.27	-.35

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

T-Test

Q15: Based on the contract language provided, the statement most accurately reflects the 1951 role played by the architect in the Ownership of Documents contract provision...

Q16: Based on the contract language provided, the statement most accurately reflects the 1997 role played by the architect in the Ownership of Documents contract provision...

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Q15	1.81	32	.592	.105
Q16	2.88	32	1.718	.304

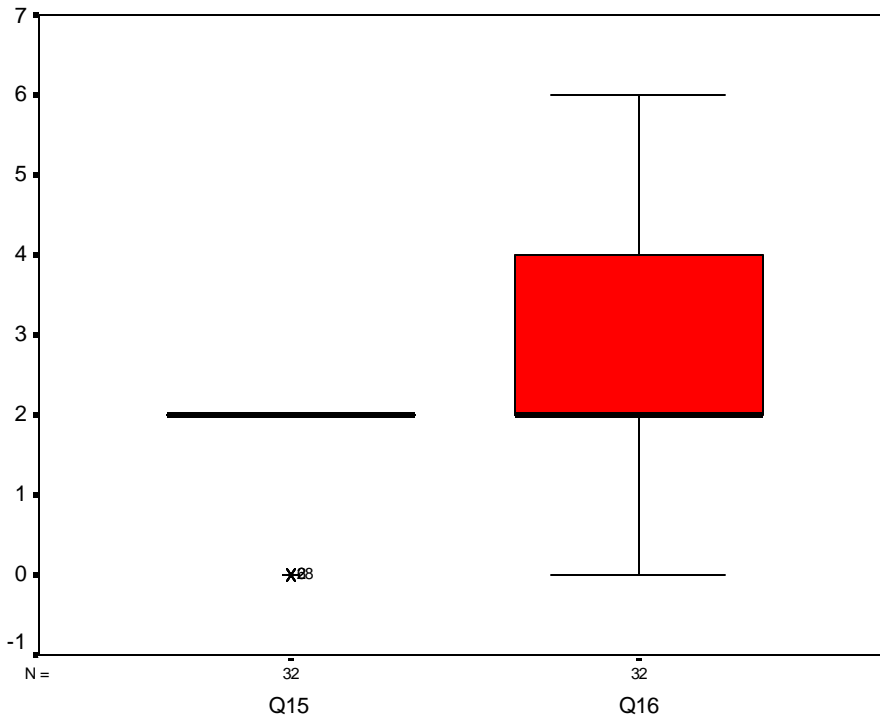
Paired Samples Test

	Paired Differences	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
					Pair 1 Q15 - Q16	-1.06			

Wilcoxon Signed Ranks Test

Test Statistics

	Q16 - Q15
Z	-3.453
Asymp. Sig. (2-tailed)	.001



Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

T-Test

Q17: The evolution of the AIA A201 Ownership of Documents provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Q17	32	3.25	1.586	.280

One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q17	.892	31	.379	.25	-.32	.82

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

T-Test

Q18: The evolution of the AIA A201 Ownership of Documents provision from 1951 to 1997 has directly affected the function of the architect.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Q18	32	3.41	1.500	.265

One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q18	1.532	31	.136	.41	-.13	.95

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

T-Test

Q19: Based on the contract language provided, the statement most accurately reflects the 1951 role played by the architect in the Final Payment contract provisi on...

Q20: Based on the contract language provided, the statement most accurately reflects the 1997 role played by the architect in the Final Payment contract provision...

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Q19	2.97	32	1.823	.322
Q20	3.22	32	1.896	.335

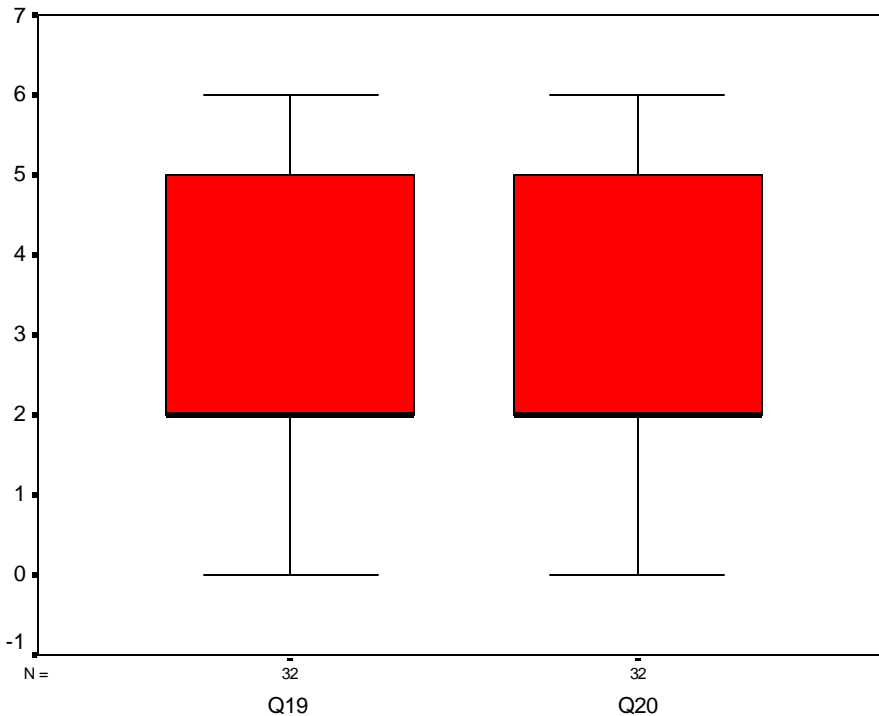
Paired Samples Test

	Paired Differences	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
					Pair 1 Q19 - Q20	-.25			

Wilcoxon Signed Ranks Test

Test Statistics

	Q20 - Q19
Z	-.772
Asymp. Sig. (2-tailed)	.440



Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

T-Test

Q21: The evolution of the AIA A201 Final Payment provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Q21	32	3.81	1.447	.256

One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q21	3.177	31	.003	.81	.29	1.33

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

T-Test

Q22: The evolution of the AIA A201 Final Payment provision from 1951 to 1997 has directly affected the function of the architect.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Q22	32	3.75	1.437	.254

One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q22	2.953	31	.006	.75	.23	1.27

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

T-Test

Q23: Based on the contract language provided, the statement most accurately reflects the 1951 role played by the architect in the Claims for Extra Cost contract provision...

Q24: Based on the contract language provided, the statement most accurately reflects the 1997 role played by the architect in the Claims for Extra Cost contract provision...

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Q23	2.38	32	1.540	.272
Q24	2.91	32	1.873	.331

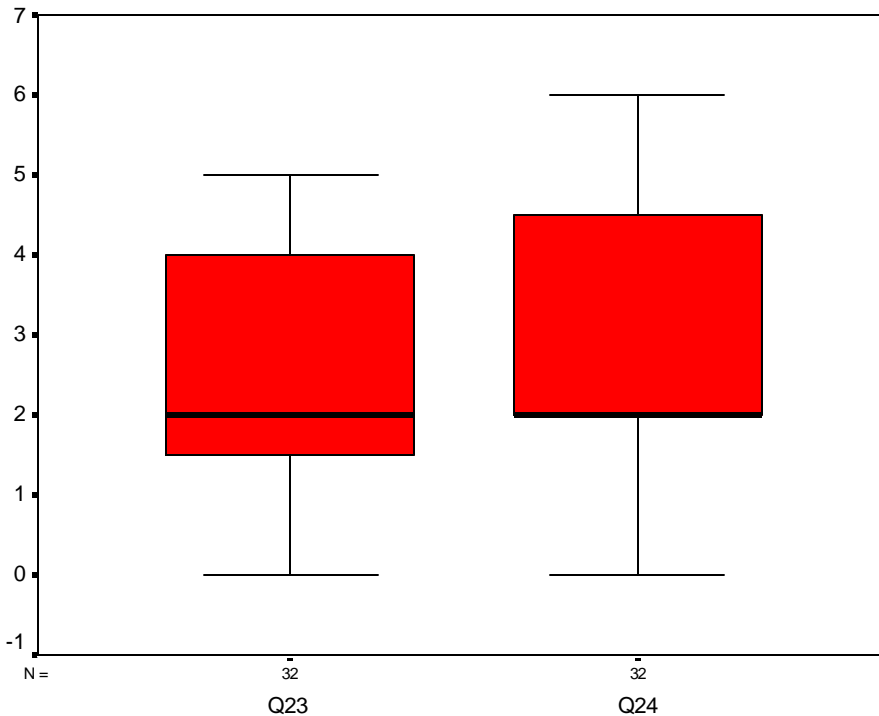
Paired Samples Test

	Paired Differences	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
					Pair 1 Q23 - Q24	-.53			

Wilcoxon Signed Ranks Test

Test Statistics

	Q24 - Q23
Z	-1.676
Asymp. Sig. (2-tailed)	.094



Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

T-Test

Q25: The evolution of the AIA A201 Claims for Extra Cost provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Q25	32	2.28	1.326	.234

One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q25	-3.067	31	.004	-.72	-1.20	-.24

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

T-Test

Q26: The evolution of the AIA A201 Claims for Extra Cost provision from 1951 to 1997 has directly affected the function of the architect.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Q26	32	2.31	1.230	.217

One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q26	-3.163	31	.003	-.69	-1.13	-.24

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

T-Test

Q27: Based on the contract language provided, the statement most accurately reflects the 1961 role played by the architect in the Shop Drawings contract provision...

Q28: Based on the contract language provided, the statement most accurately reflects the 1997 role played by the architect in the Shop Drawings contract provision...

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Q27	3.69	32	1.533	.271
Q28	4.69	32	1.378	.244

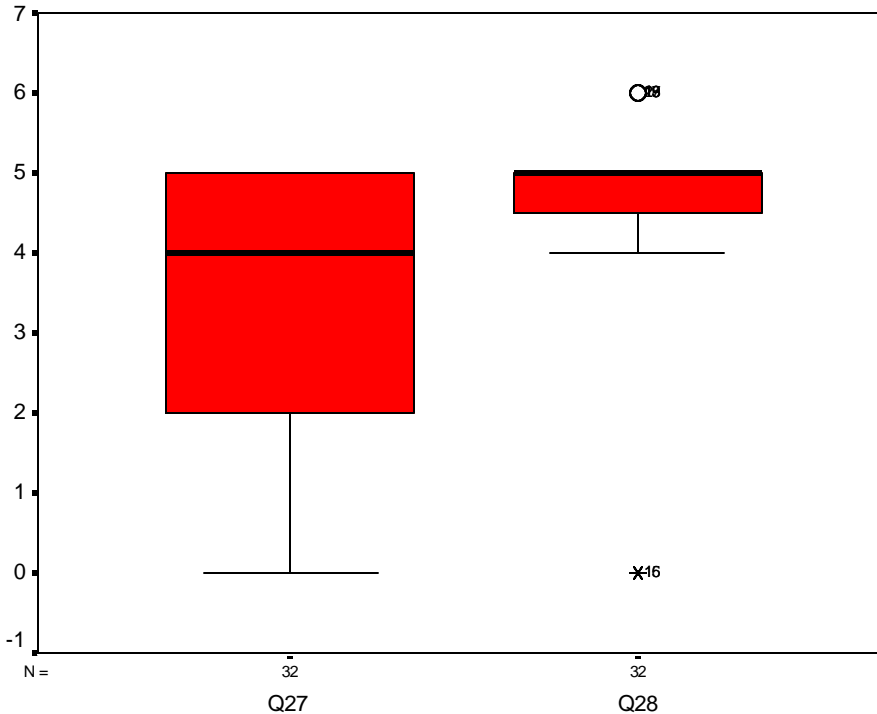
Paired Samples Test

	Paired Differences	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
					Pair 1 Q27 - Q28	-1.00			

Wilcoxon Signed Ranks Test

Test Statistics

	Q28 - Q27
Z	-3.574
Asymp. Sig. (2-tailed)	.000



Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

T-Test

Q29: The evolution of the AIA A201 Shop Drawings provision from 1961 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Q29	32	2.25	1.164	.206

One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q29	-3.645	31	.001	-.75	-1.17	-.33

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

T-Test

Q30: The evolution of the AIA A201 Shop Drawings provision from 1961 to 1997 has directly affected the function of the architect.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Q30	32	2.38	1.314	.232

One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q30	-2.691	31	.011	-.63	-1.10	-.15

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

T-Test

Q31: Based on the contract language provided, the statement most accurately reflects the 1951 role played by the architect in the Changes in the Work contract provision...

Q32: Based on the contract language provided, the statement most accurately reflects the 1997 role played by the architect in the Changes in the Work contract provision...

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Q31	3.00	32	1.704	.301
Q32	3.38	32	2.012	.356

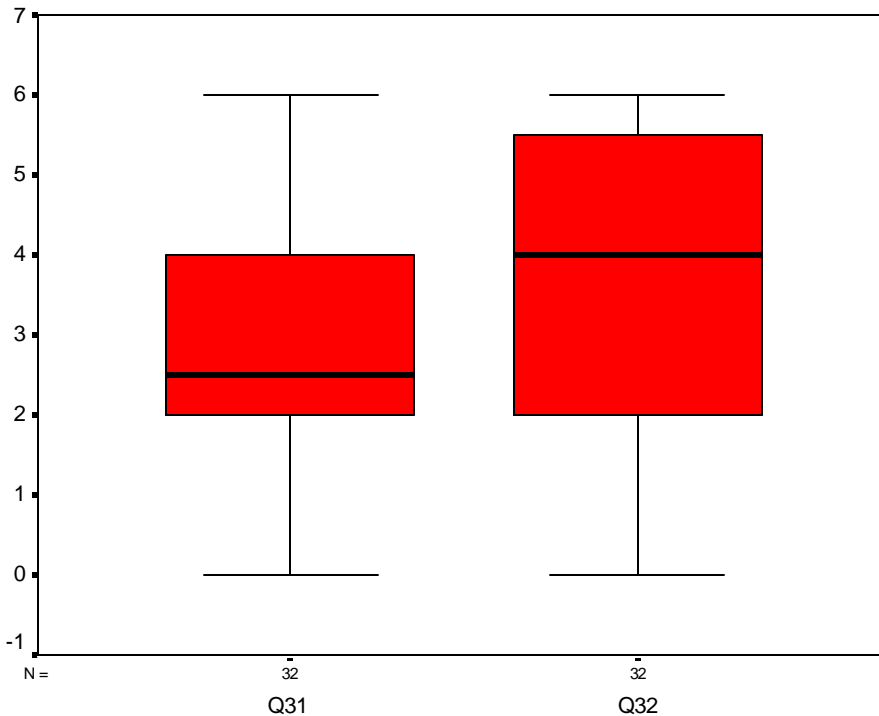
Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Q31 - Q32	-.38	1.454	.257	-.90	.15	-1.459	31	.155

Wilcoxon Signed Ranks Test

Test Statistics

	Q32 - Q31
Z	-1.385
Asymp. Sig. (2-tailed)	.166



Role of the architect is viewed as...

- Active 1 = quasi-judicial role
- Active 2 = primary lead role
- Medium 3 = supervisory role
- Medium 4 = secondary support role
- Passive 5 = reviewer role
- Passive 6 = advisory role

T-Test

Q33: The evolution of the AIA A201 Changes in the Work provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Q33	32	2.47	1.344	.238

One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q33	-2.237	31	.033	-.53	-1.02	-.05

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

T-Test

Q34: The evolution of the AIA A201 Changes in the Work provision from 1951 to 1997 has directly affected the function of the architect.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Q34	32	2.53	1.295	.229

One-Sample Test

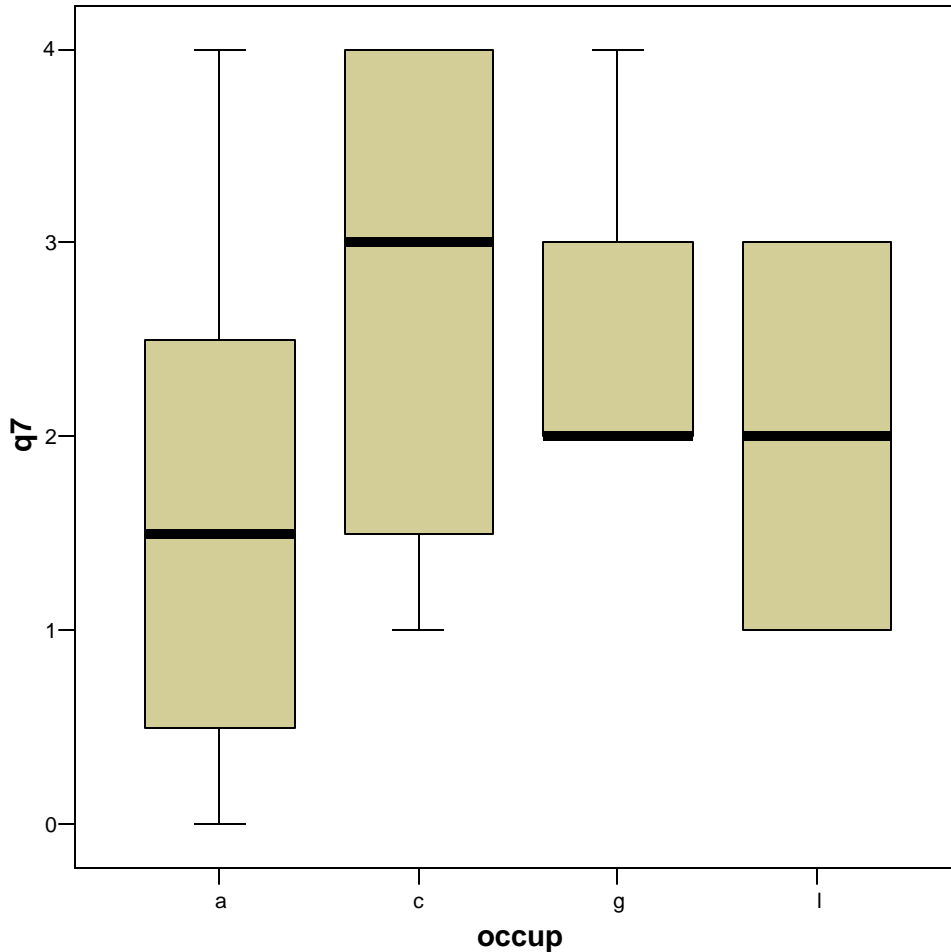
	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q34	-2.048	31	.049	-.47	-.94	.00

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

**Occupation (Occup):
 Architect/Engineer/Owners/Others (a); Construction Managers (c); General
 Contractors (g); Lawyers (l)**

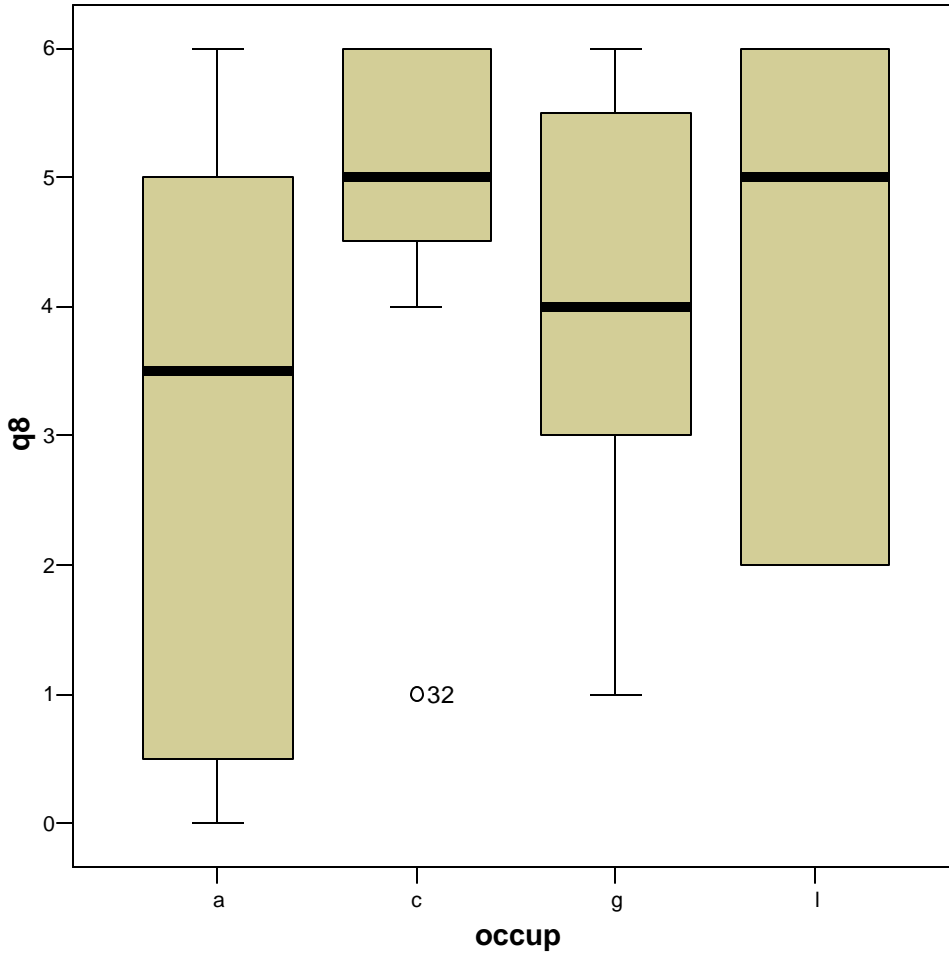
q7 : Based on the contract language provided, the statement most accurately reflects the 1951 role played by the architect in the Role of the Architect contract provision...



Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

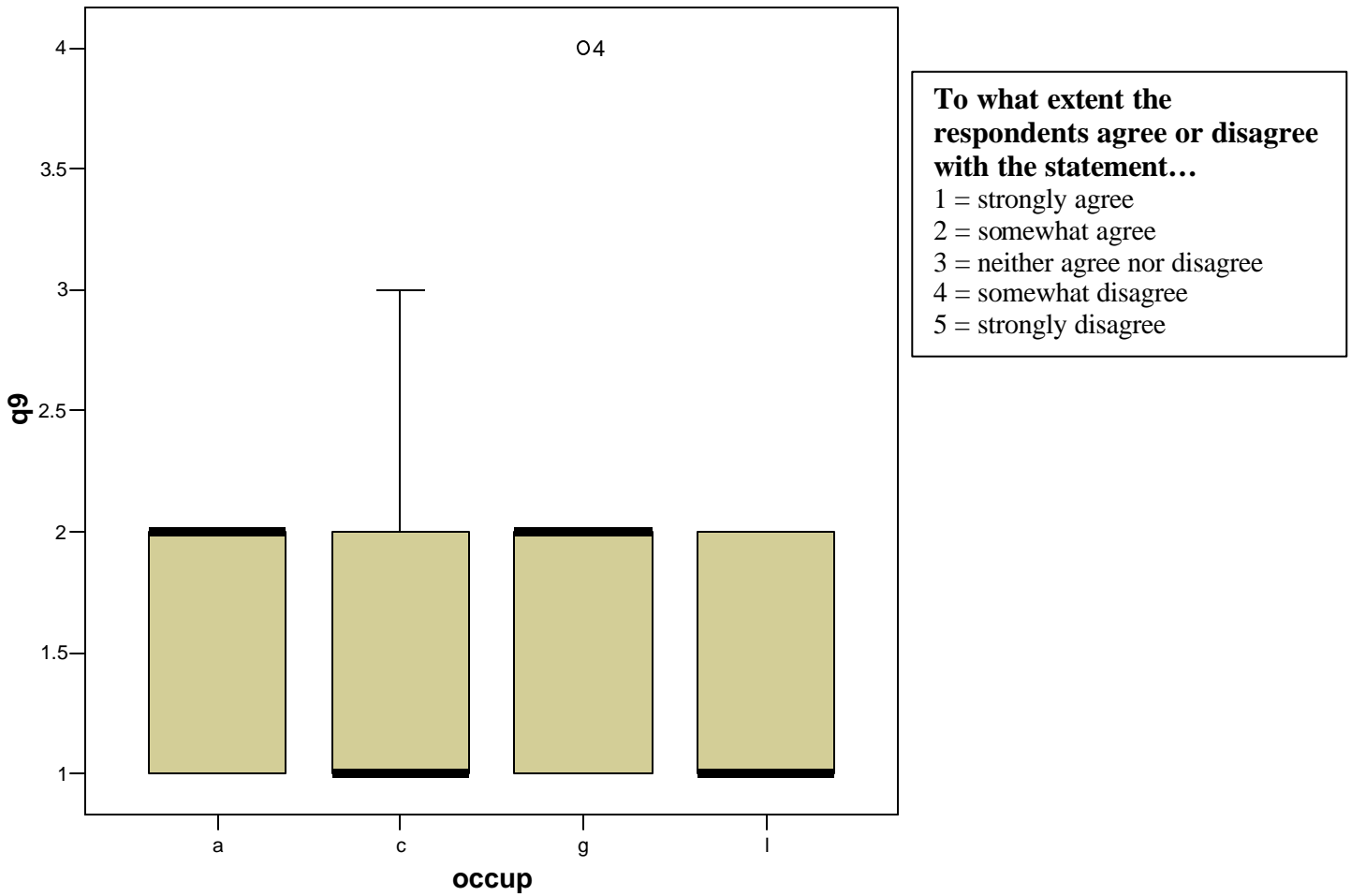
**Occupation (Occup):
 Architect/Engineer/Owners/Others (a); Construction Managers (c); General
 Contractors (g); Lawyers (l)**

q8: Based on the contract language provided, the statement most accurately reflects the 1997 role played by the architect in the Role of the Architect contract provision...

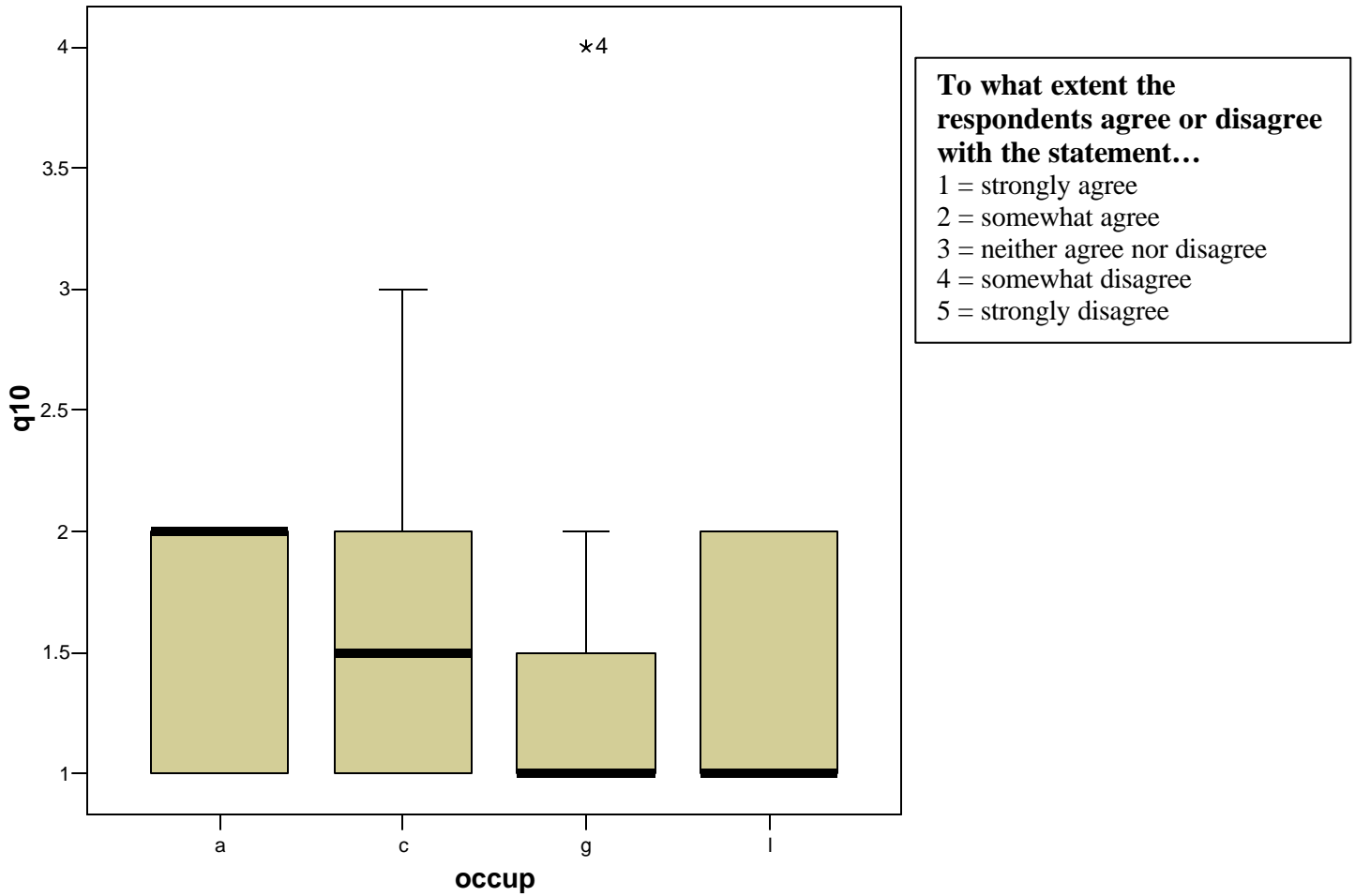


Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

q9: The evolution of the AIA A201 Role of the Architect provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

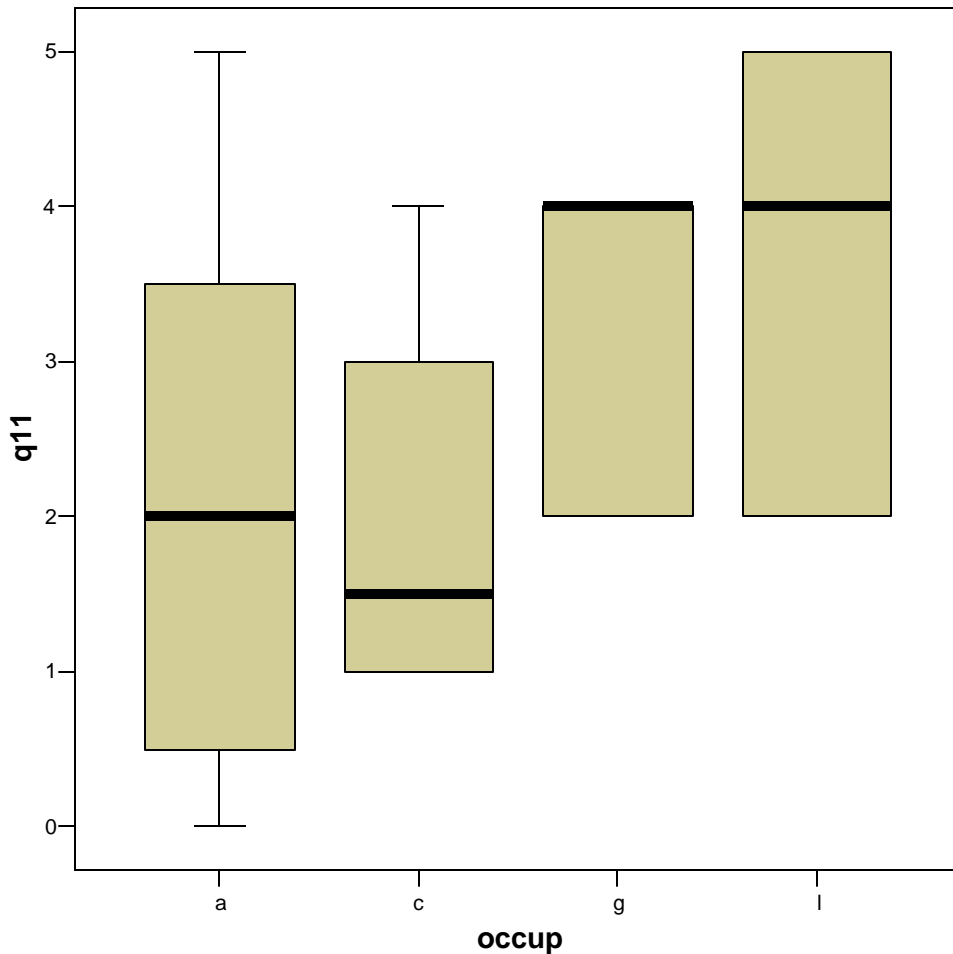


q10: The evolution of the AIA A201 Role of the Architect provision from 1951 to 1997 has directly affected the function of the architect.



**Occupation (Occup):
Architect/Engineer/Owners/Others (a); Construction Managers (c); General Contractors (g); Lawyers (l)**

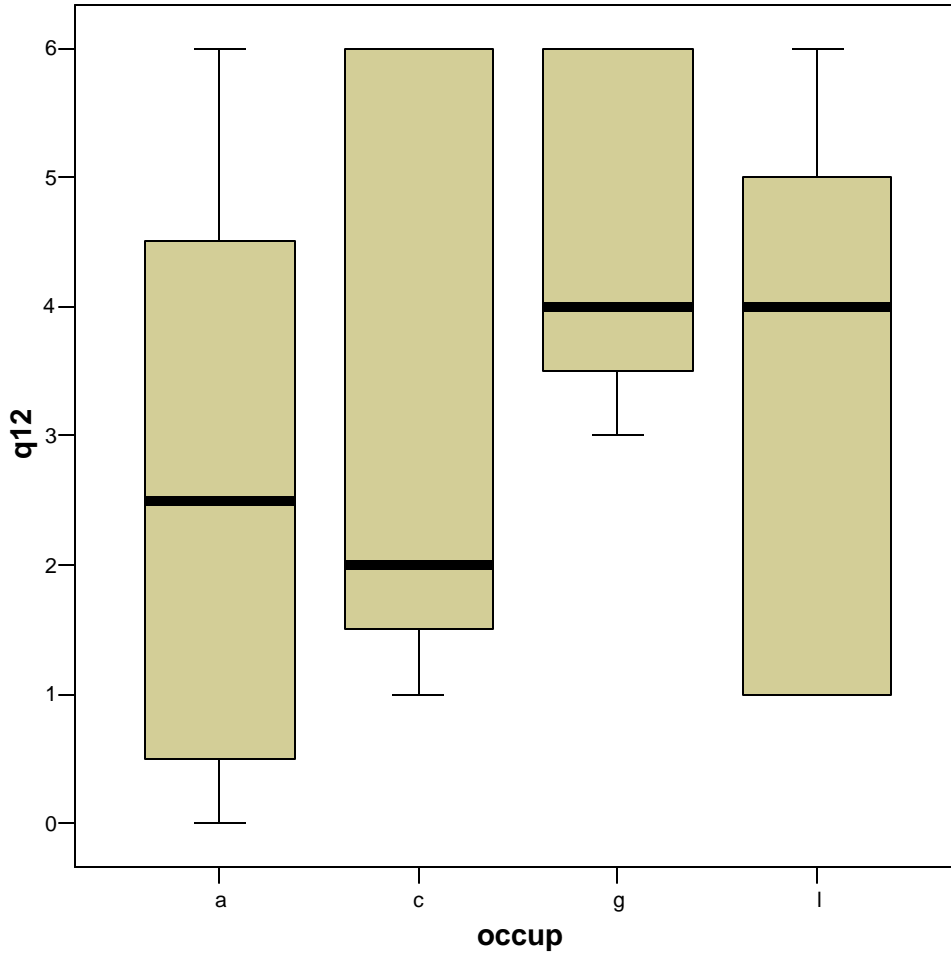
q11: Based on the contract language provided, the statement most accurately reflects the 1966 role played by the architect in the Dispute Resolution contract provision...



Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

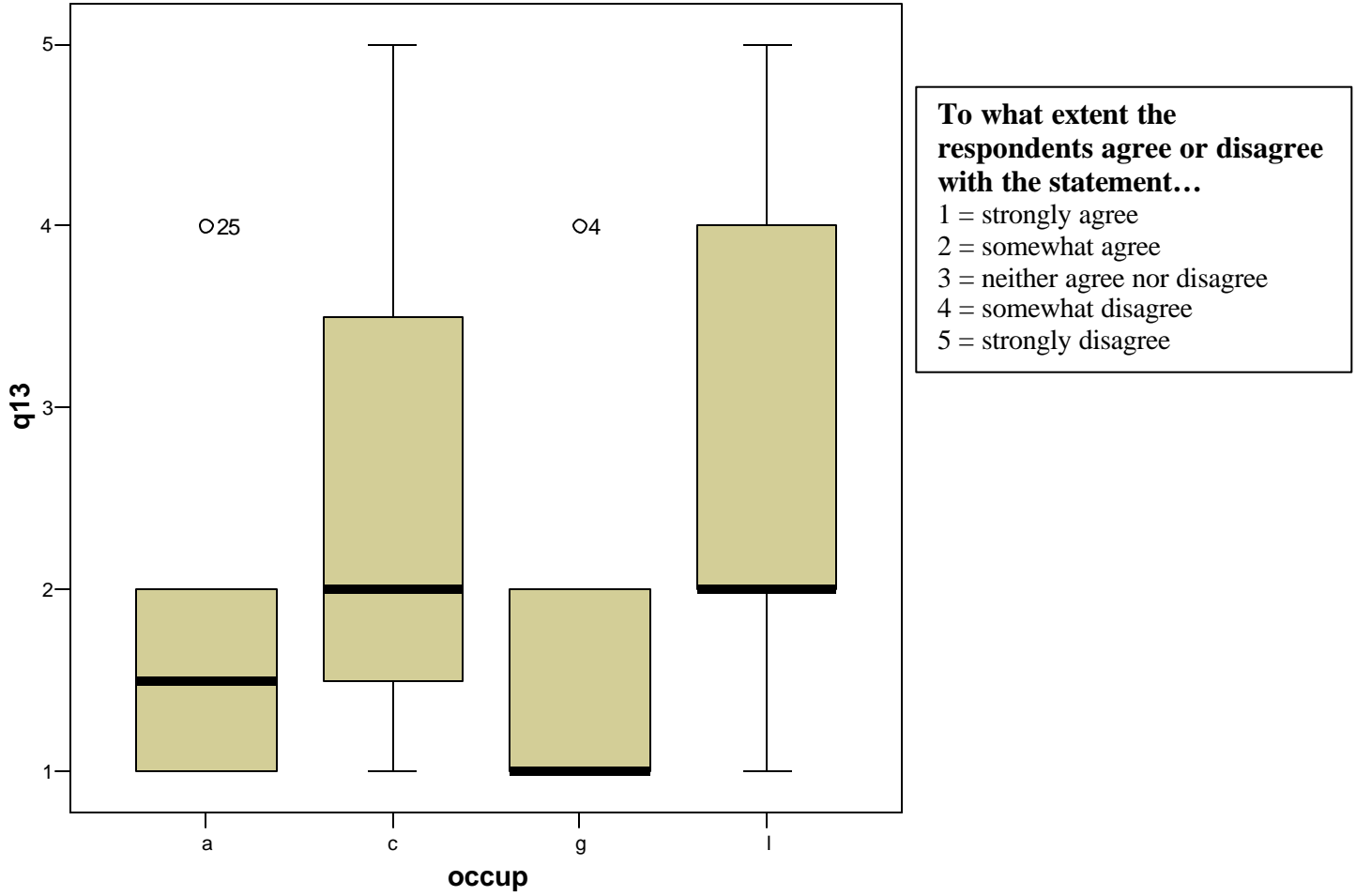
**Occupation (Occup):
 Architect/Engineer/Owners/Others (a); Construction Managers (c); General
 Contractors (g); Lawyers (l)**

q12: Based on the contract language provided, the statement most accurately reflects the 1997 role played by the architect in the Dispute Resolution contract provision...

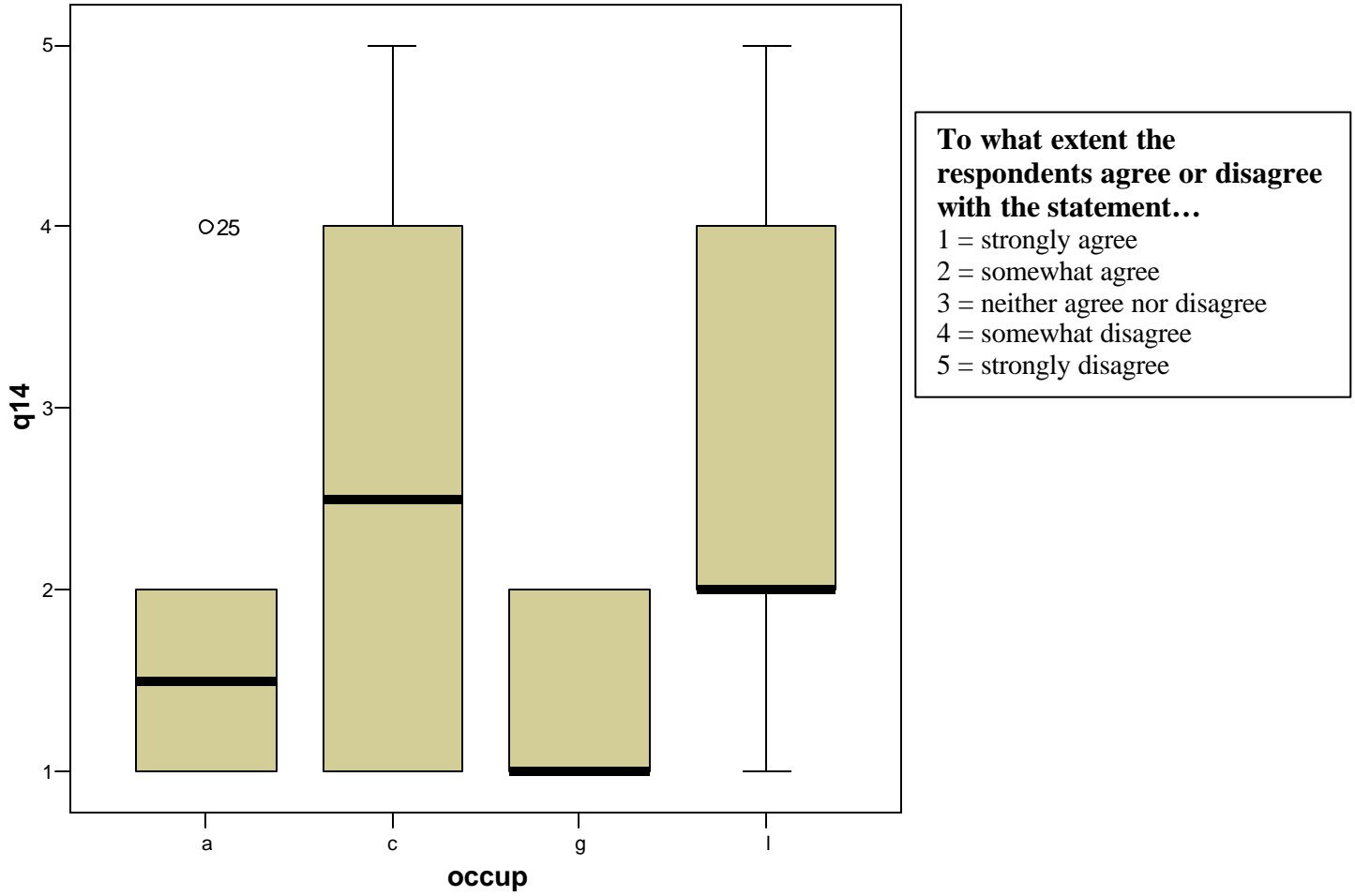


Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

q13: The evolution of the AIA A201 Dispute Resolution provision from 1966 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

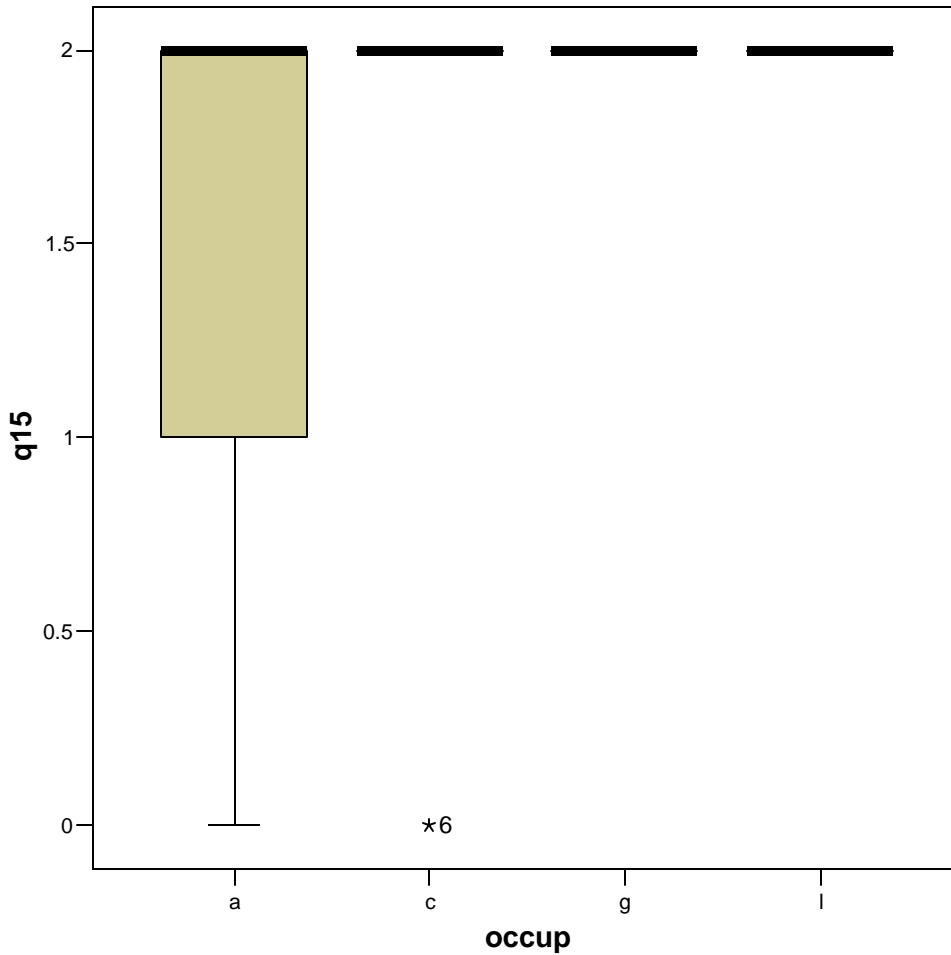


q14: The evolution of the AIA A201 Dispute Resolution provision from 1966 to 1997 has directly affected the function of the architect.



**Occupation (Occup):
Architect/Engineer/Owners/Others (a); Construction Managers (c); General
Contractors (g); Lawyers (l)**

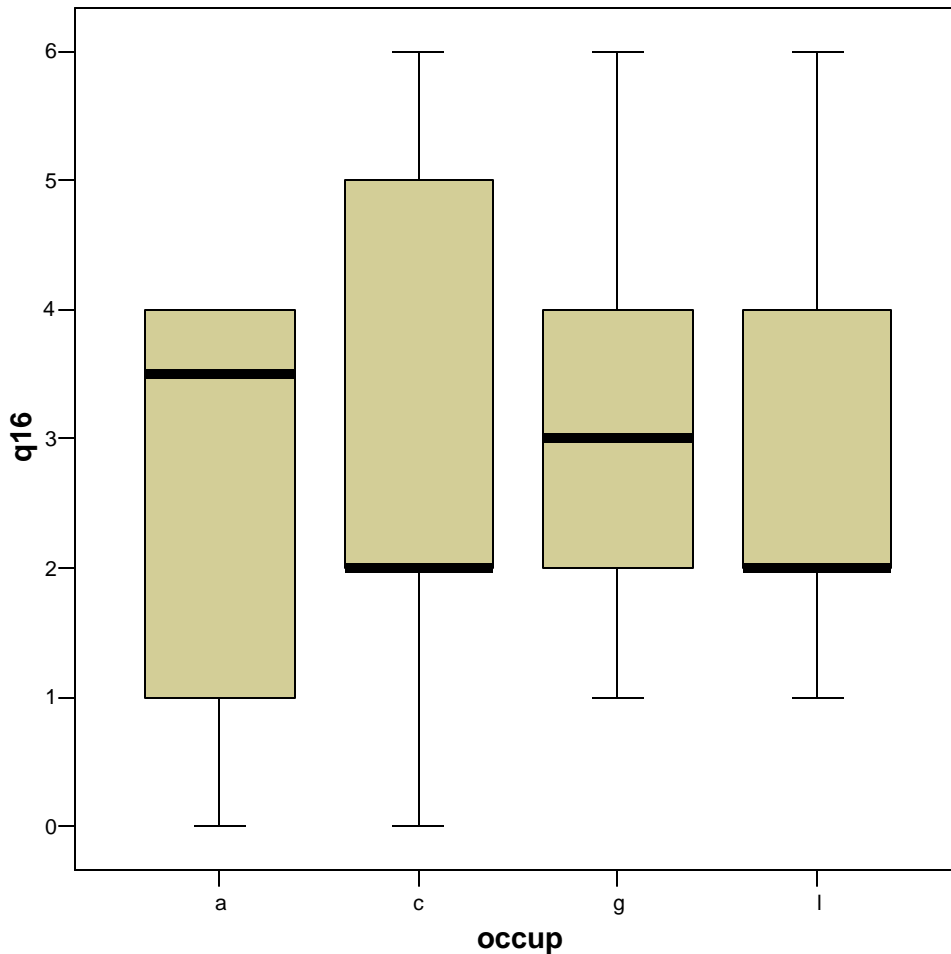
q15: Based on the contract language provided, the statement most accurately reflects the 1951 role played by the architect in the Ownership of Documents contract provision...



Role of the architect is viewed as...
Active 1 = quasi-judicial role
Active 2 = primary lead role
Medium 3 = supervisory role
Medium 4 = secondary support role
Passive 5 = reviewer role
Passive 6 = advisory role

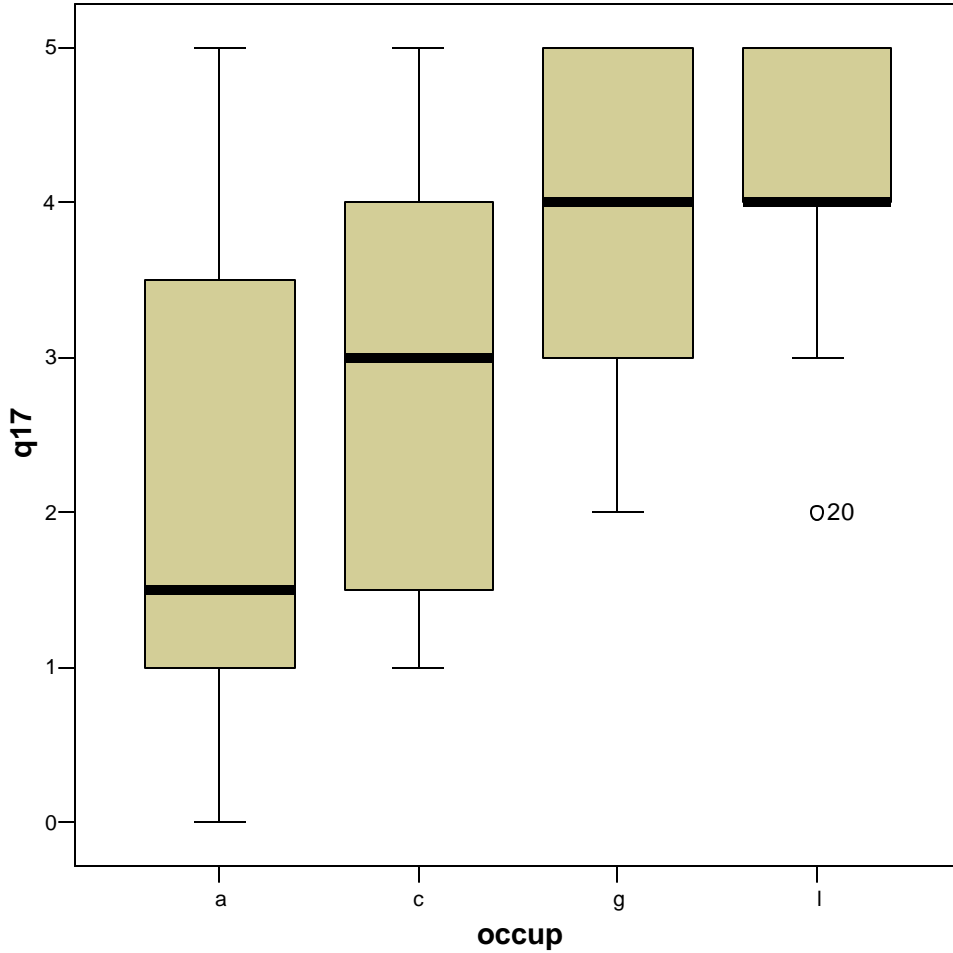
**Occupation (Occup):
 Architect/Engineer/Owners/Others (a); Construction Managers (c); General
 Contractors (g); Lawyers (l)**

q16: Based on the contract language provided, the statement most accurately reflects the 1997 role played by the architect in the Ownership of Documents contract provision...



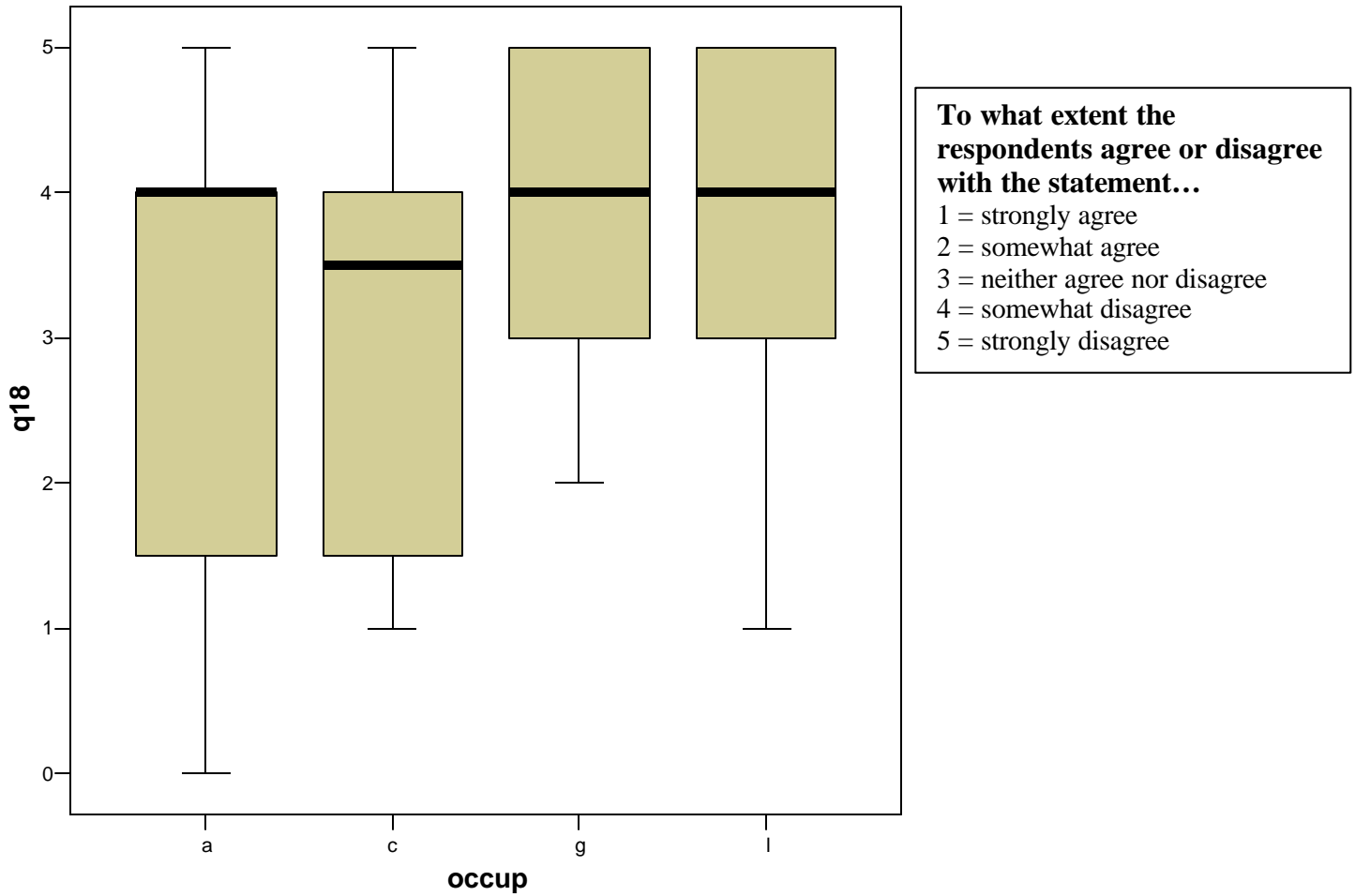
Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

q17: The evolution of the AIA A201 Ownership of Documents provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.



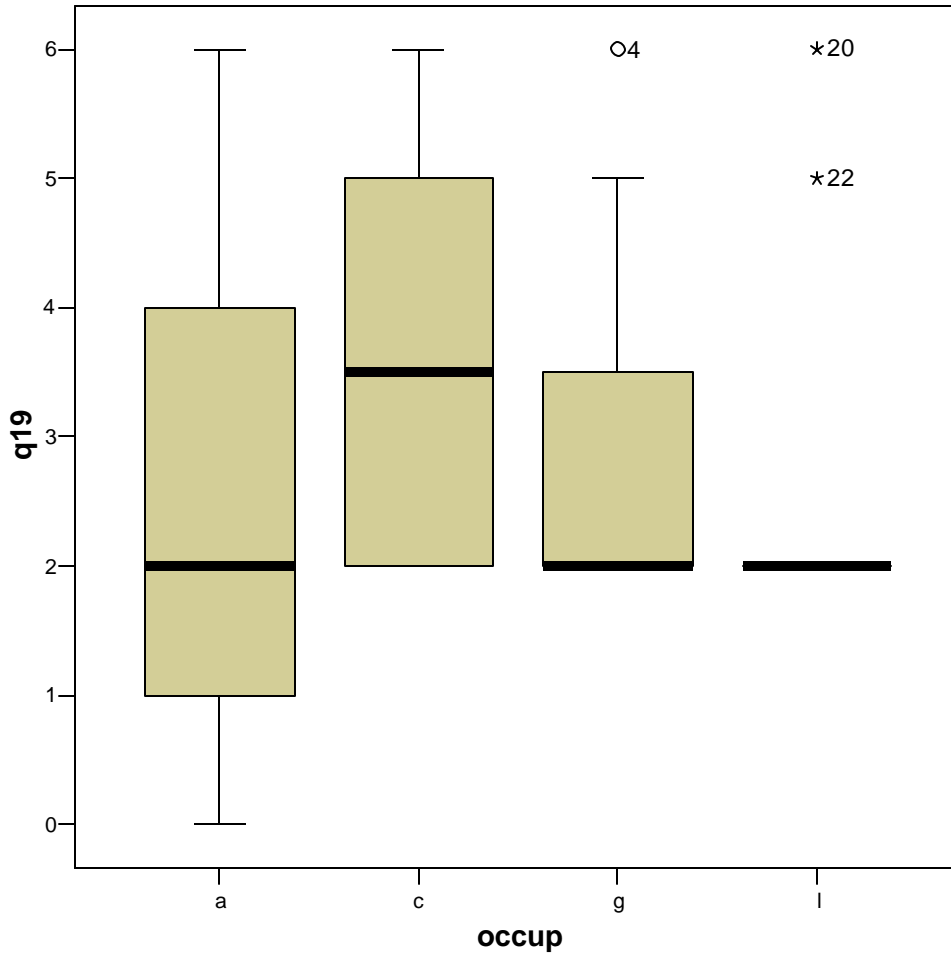
To what extent the respondents agree or disagree with the statement...
1 = strongly agree
2 = somewhat agree
3 = neither agree nor disagree
4 = somewhat disagree
5 = strongly disagree

q18: The evolution of the AIA A201 Ownership of Documents provision from 1951 to 1997 has directly affected the function of the architect.



**Occupation (Occup):
 Architect/Engineer/Owners/Others (a); Construction Managers (c); General
 Contractors (g); Lawyers (l)**

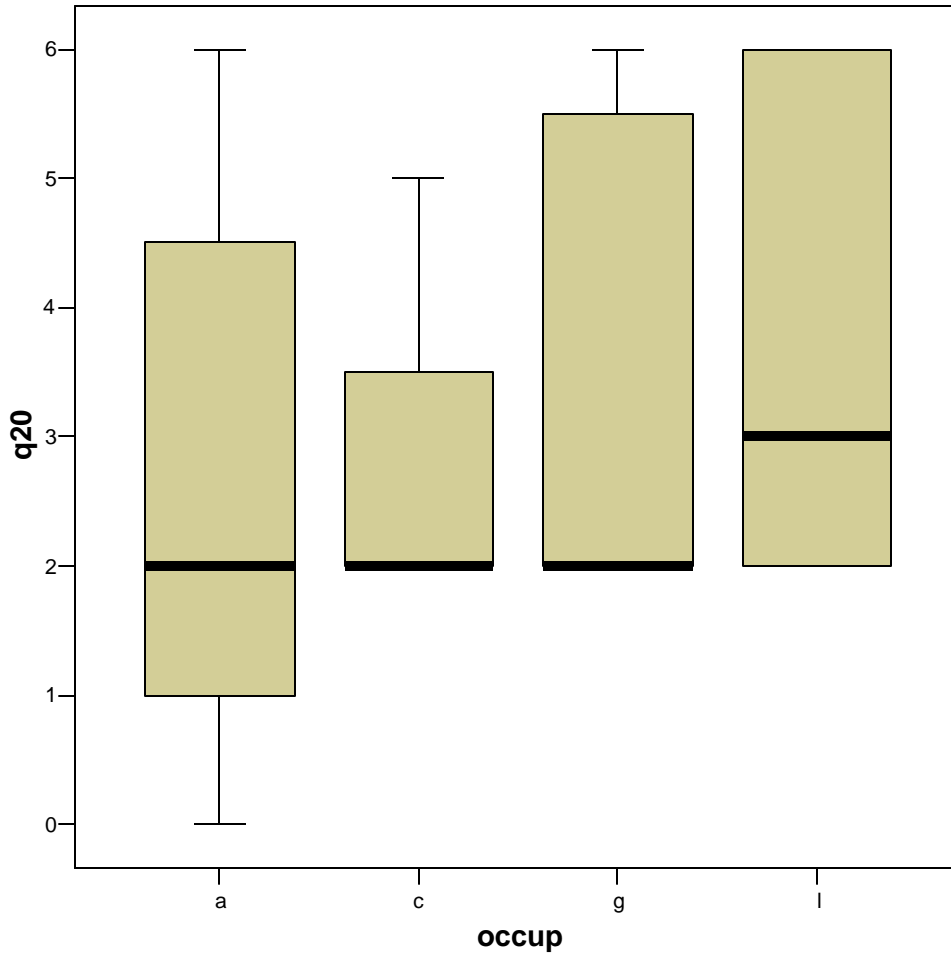
q19: Based on the contract language provided, the statement most accurately reflects the 1951 role played by the architect in the Final Payment contract provision...



Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

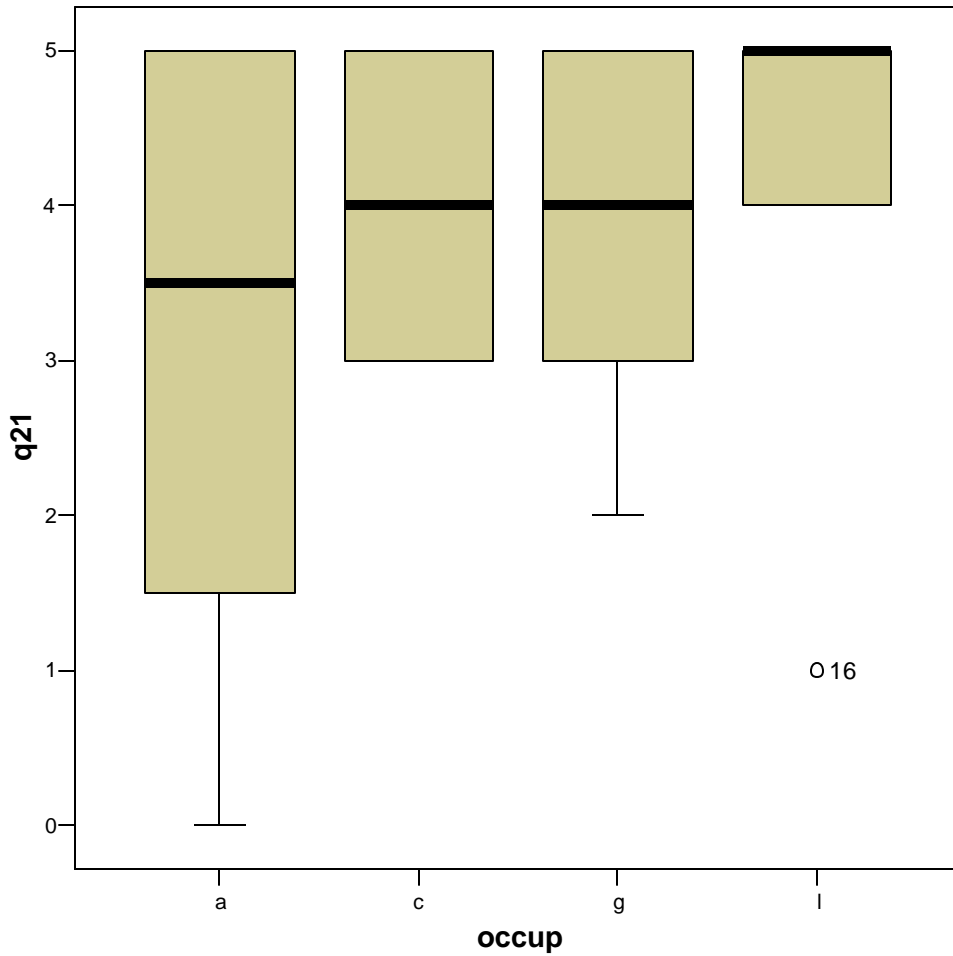
**Occupation (Occup):
 Architect/Engineer/Owners/Others (a); Construction Managers (c); General
 Contractors (g); Lawyers (l)**

q20: Based on the contract language provided, the statement most accurately reflects the 1997 role played by the architect in the Ownership of Documents contract provision...



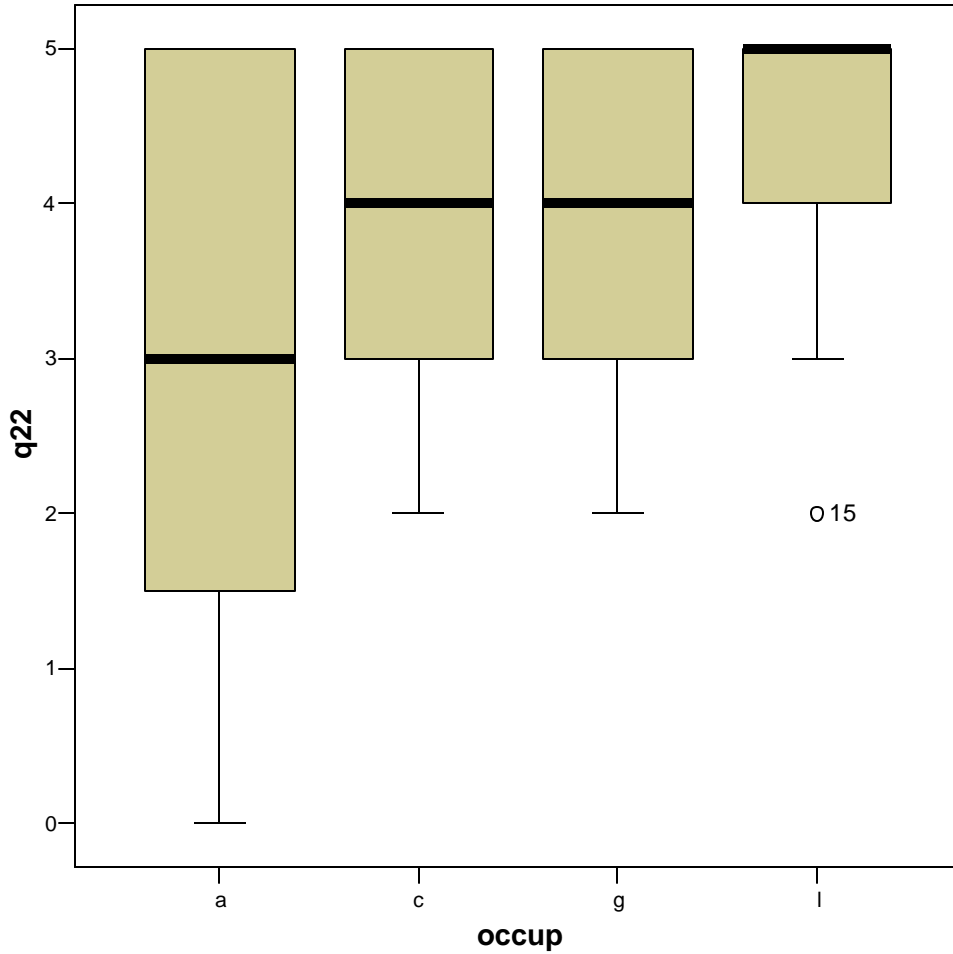
Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

q21: The evolution of the AIA A201 Final Payment provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.



To what extent the respondents agree or disagree with the statement...
1 = strongly agree
2 = somewhat agree
3 = neither agree nor disagree
4 = somewhat disagree
5 = strongly disagree

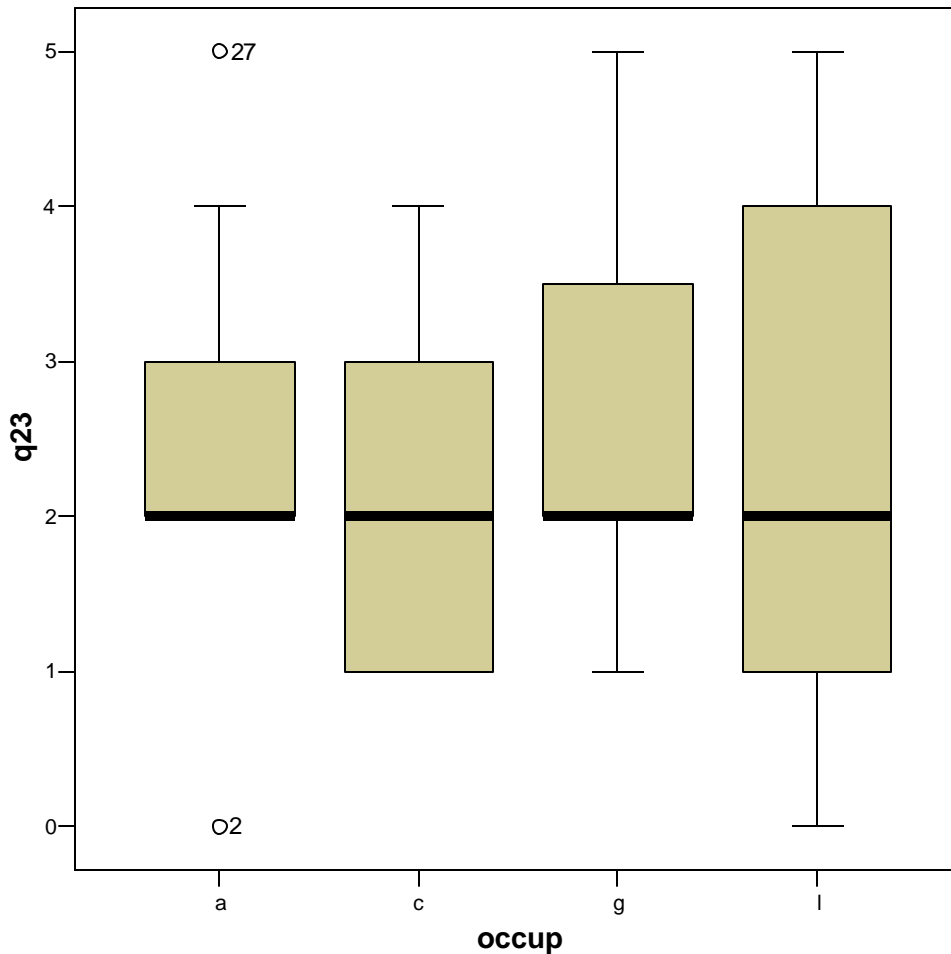
q22: The evolution of the AIA A201 Final Payment provision from 1951 to 1997 has directly affected the function of the architect.



To what extent the respondents agree or disagree with the statement...
1 = strongly agree
2 = somewhat agree
3 = neither agree nor disagree
4 = somewhat disagree
5 = strongly disagree

**Occupation (Occup):
 Architect/Engineer/Owners/Others (a); Construction Managers (c); General
 Contractors (g); Lawyers (l)**

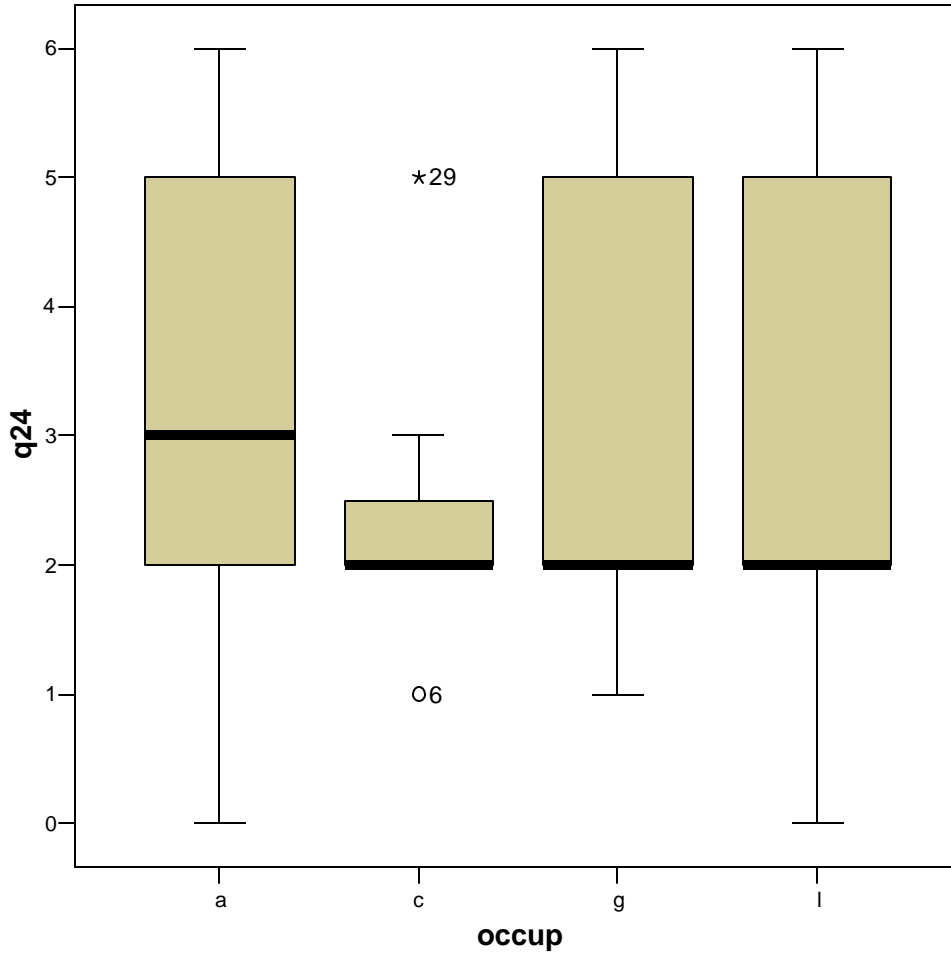
q23: Based on the contract language provided, the statement most accurately reflects the 1951 role played by the architect in the Claims for Extra Cost contract provision...



Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

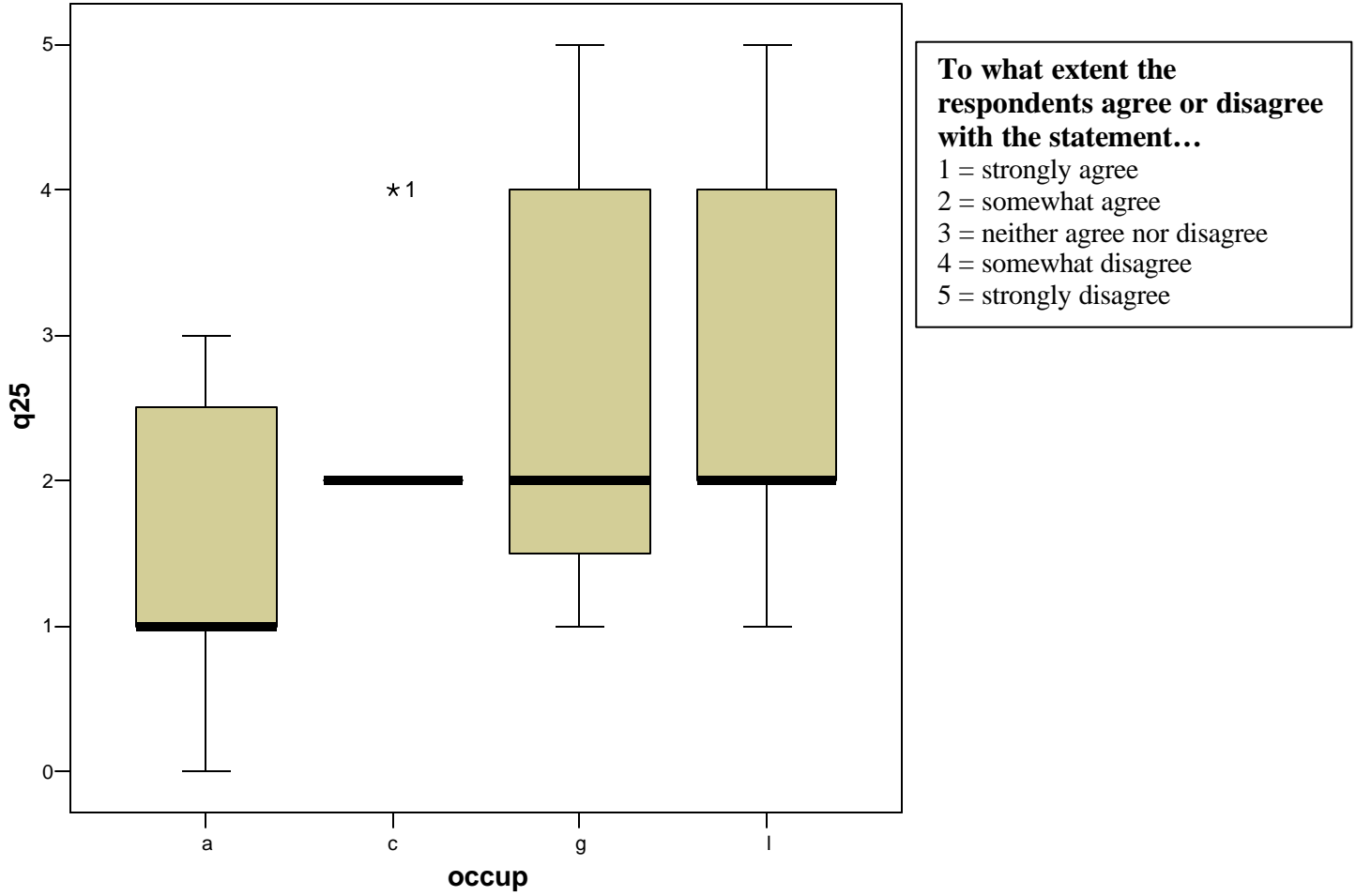
**Occupation (Occup):
 Architect/Engineer/Owners/Others (a); Construction Managers (c); General
 Contractors (g); Lawyers (l)**

q24: Based on the contract language provided, the statement most accurately reflects the 1951 role played by the architect in the Claims for Extra Cost contract provision...

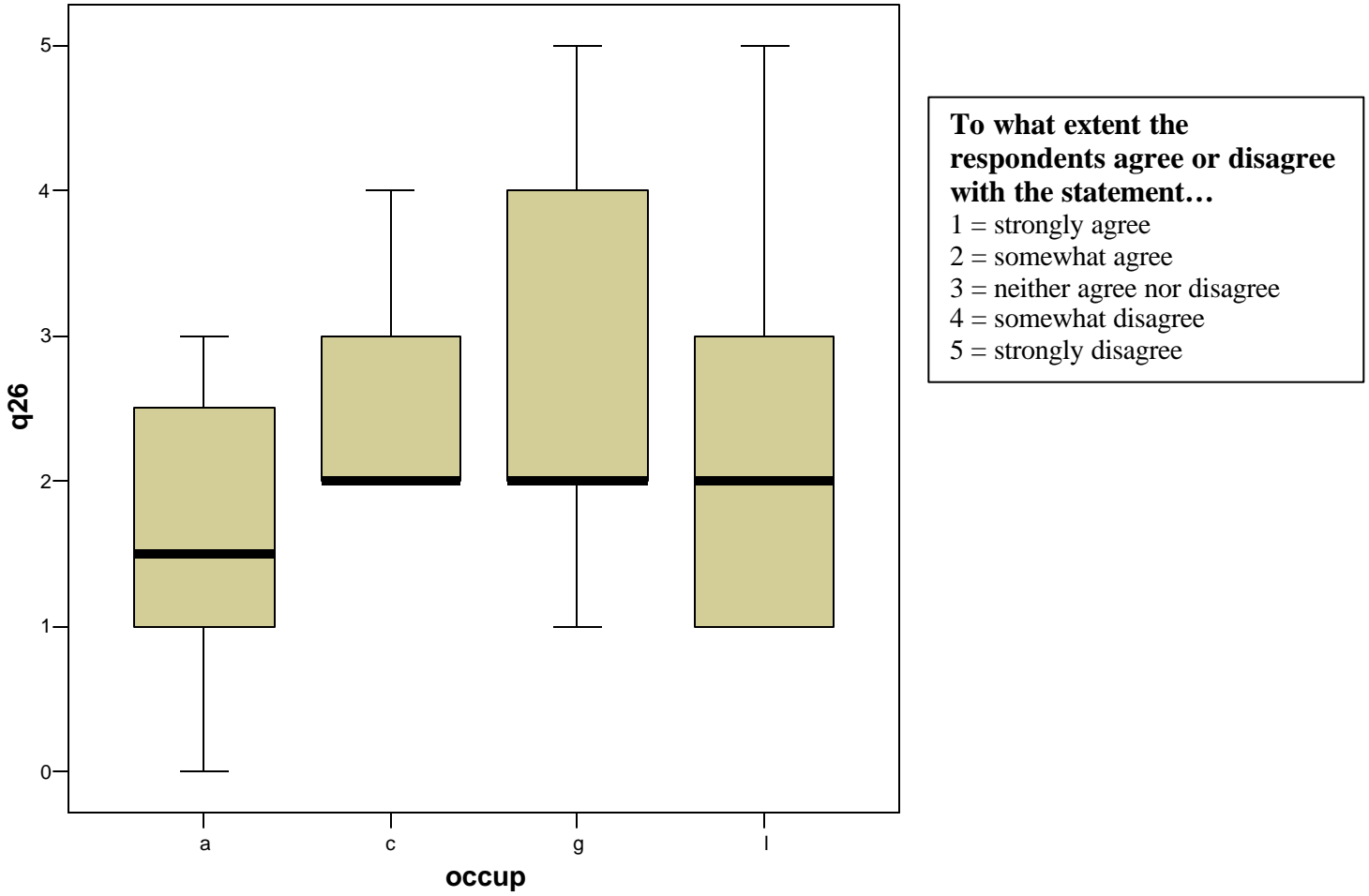


Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

q25: The evolution of the AIA A201 Claims for Extra Cost provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

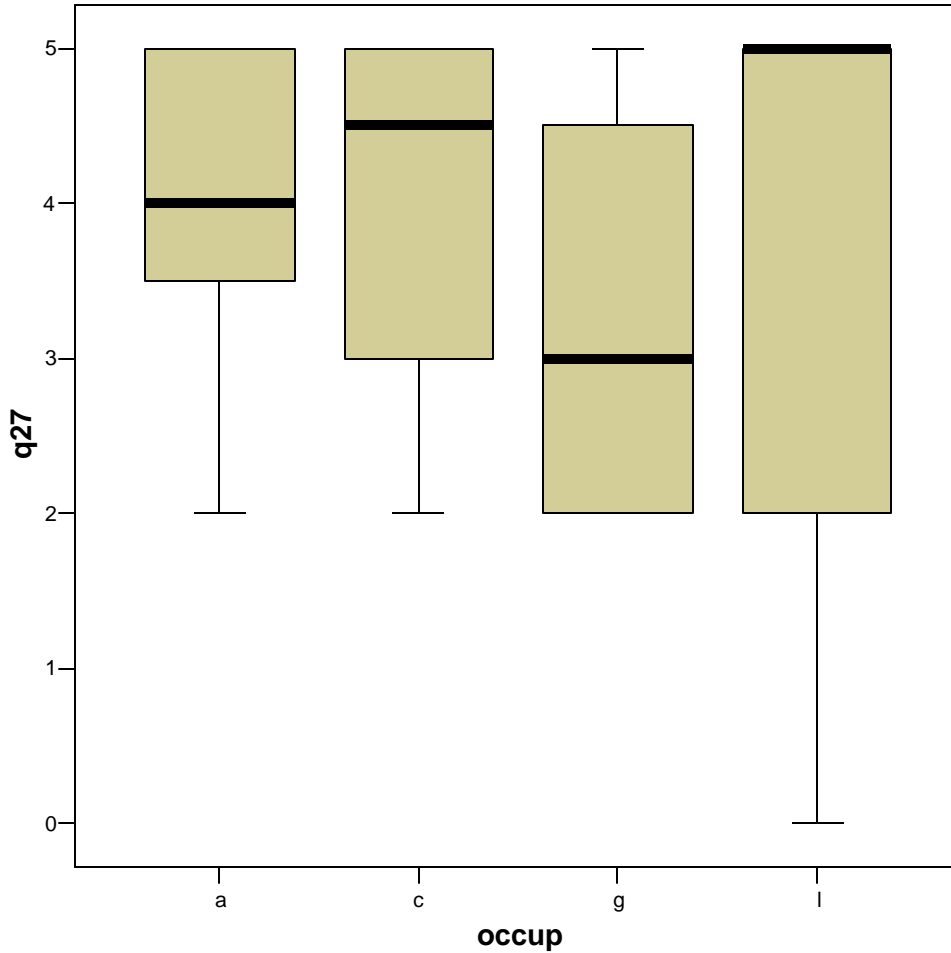


q26: The evolution of the AIA A201 Claims of Extra Cost provision from 1951 to 1997 has directly affected the function of the architect.



**Occupation (Occup):
 Architect/Engineer/Owners/Others (a); Construction Managers (c); General
 Contractors (g); Lawyers (l)**

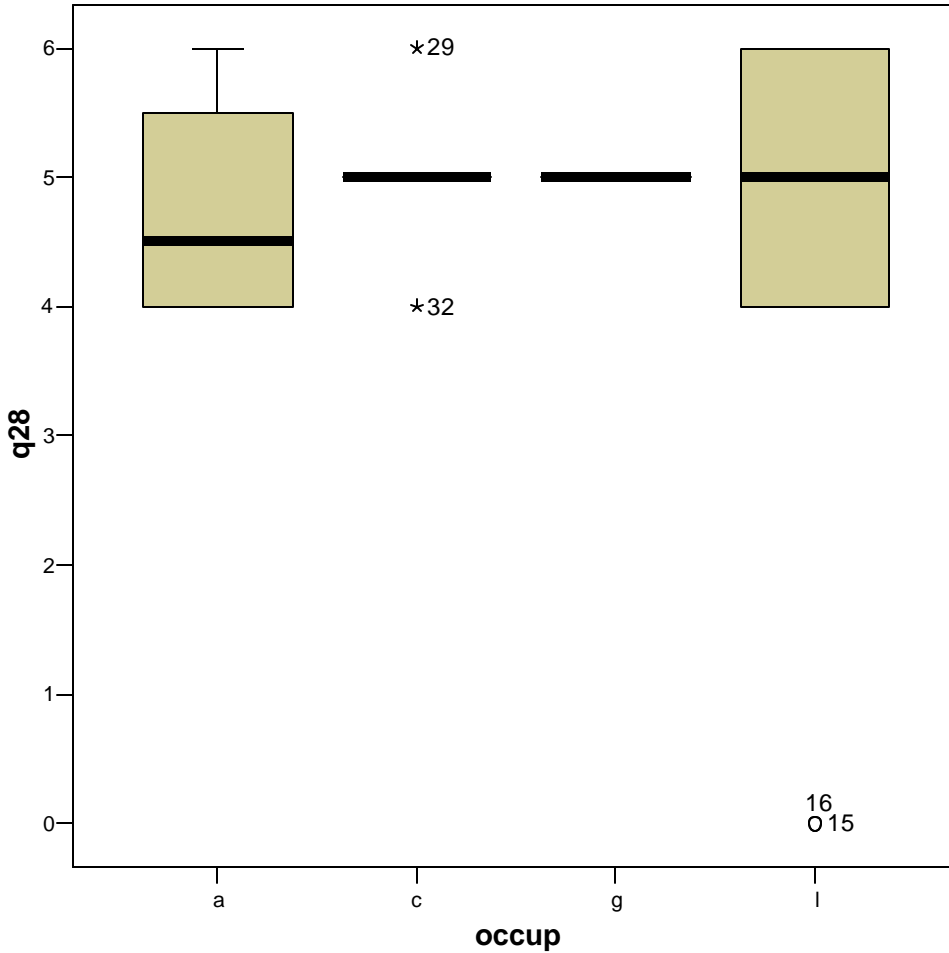
q27: Based on the contract language provided, the statement most accurately reflects the 1961 role played by the architect in the Shop Drawings contract provision...



Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

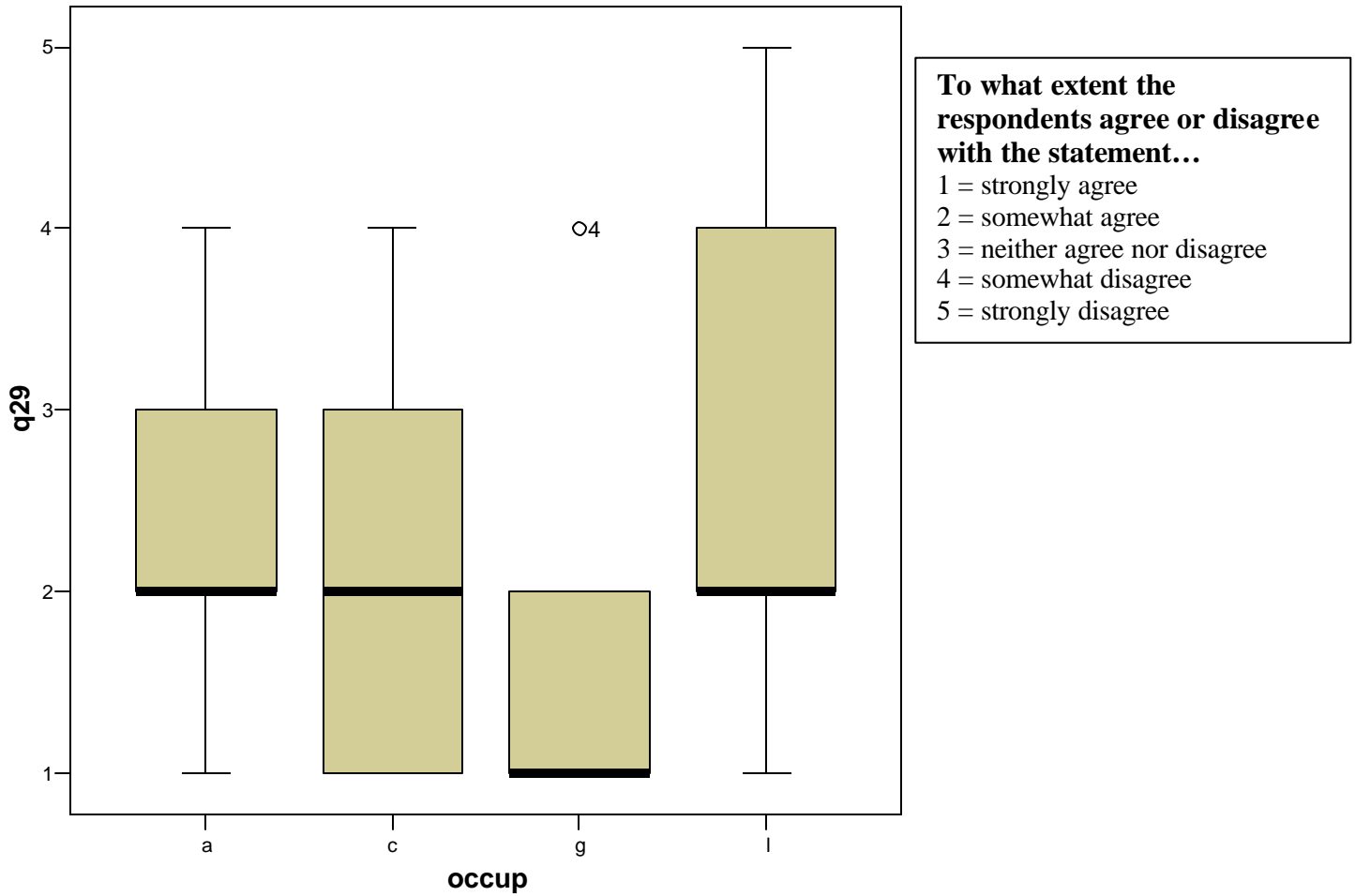
**Occupation (Occup):
 Architect/Engineer/Owners/Others (a); Construction Managers (c); General
 Contractors (g); Lawyers (l)**

q28: Based on the contract language provided, the statement most accurately reflects the 1997 role played by the architect in the Shop Drawings contract provision...

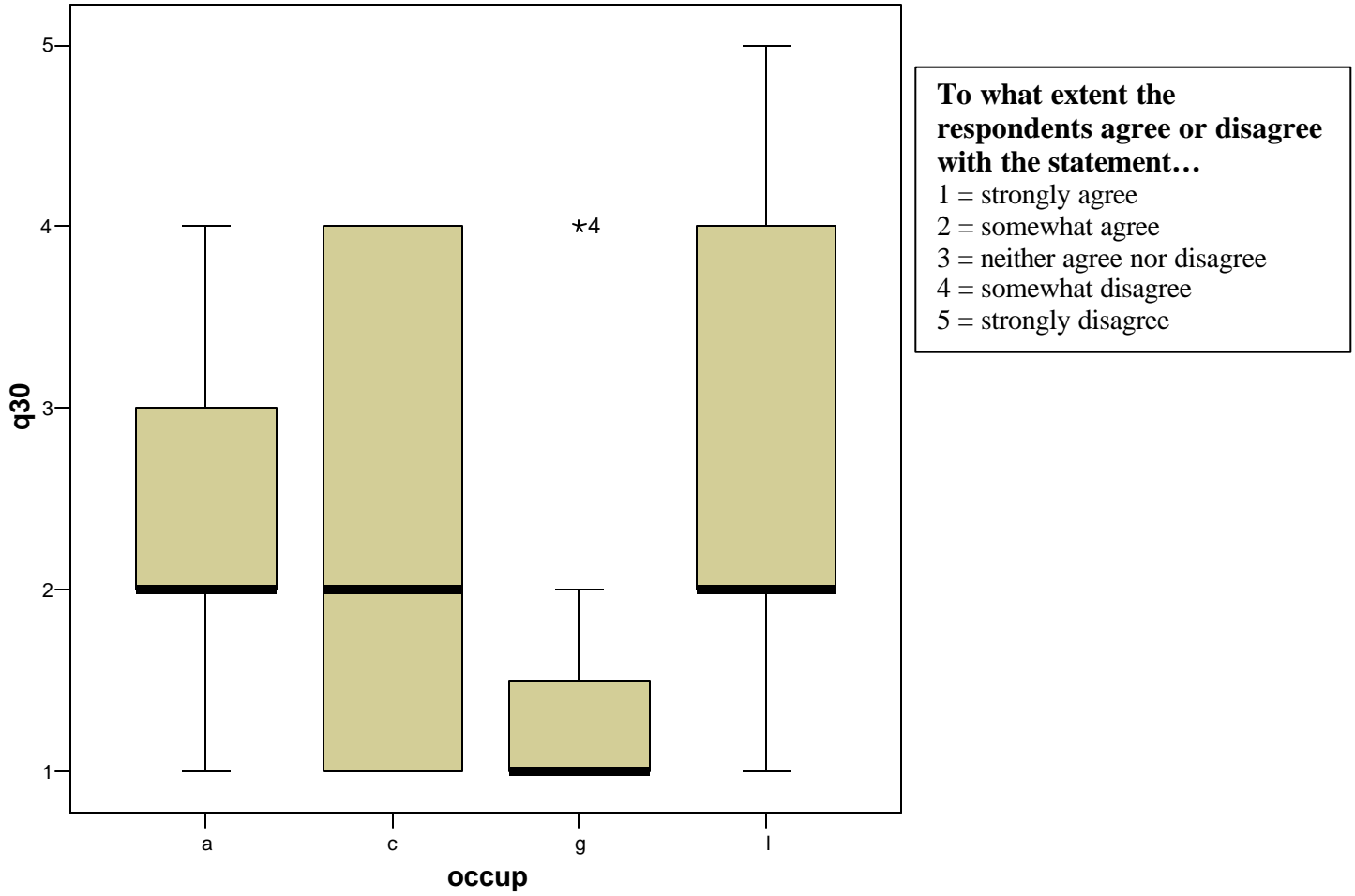


Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

q29: The evolution of the AIA A201 Shop Drawings provision from 1961 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.

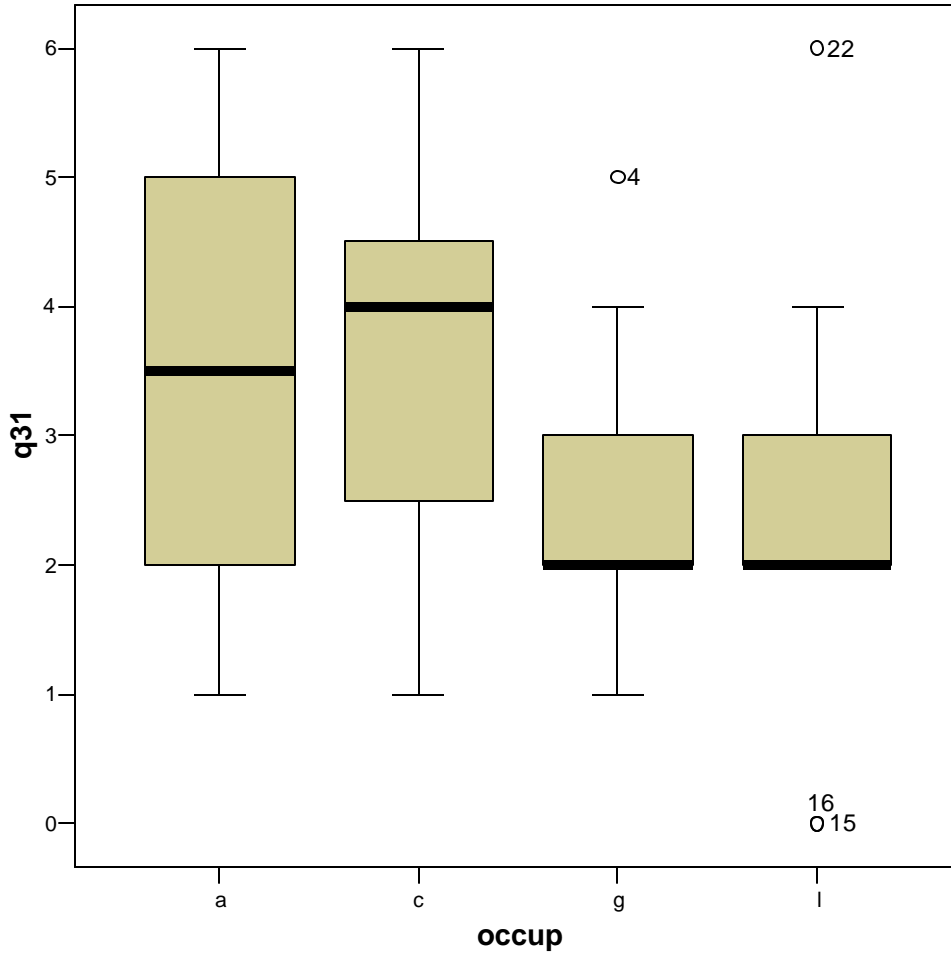


q30: The evolution of the AIA A201 Shop Drawings provision from 1961 to 1997 has directly affected the function of the architect.



**Occupation (Occup):
Architect/Engineer/Owners/Others (a); Construction Managers (c); General Contractors (g); Lawyers (l)**

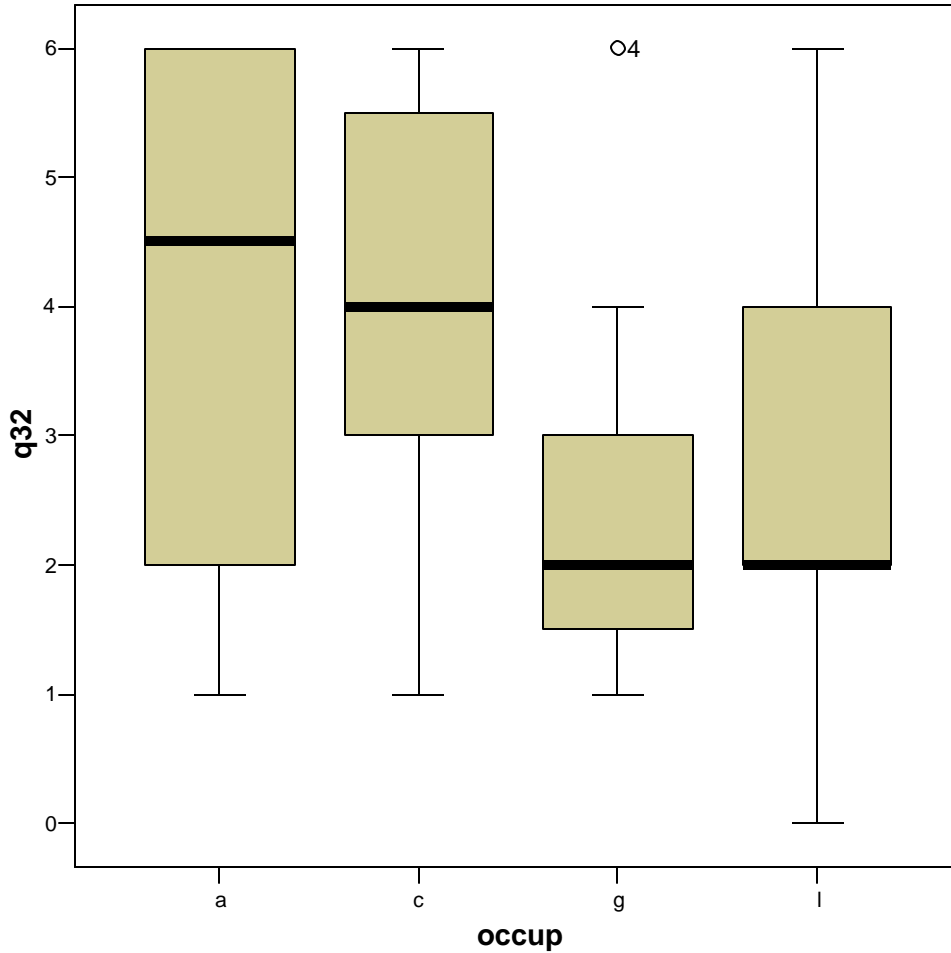
q31: Based on the contract language provided, the statement most accurately reflects the 1951 role played by the architect in the Changes in the Work contract provision...



Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

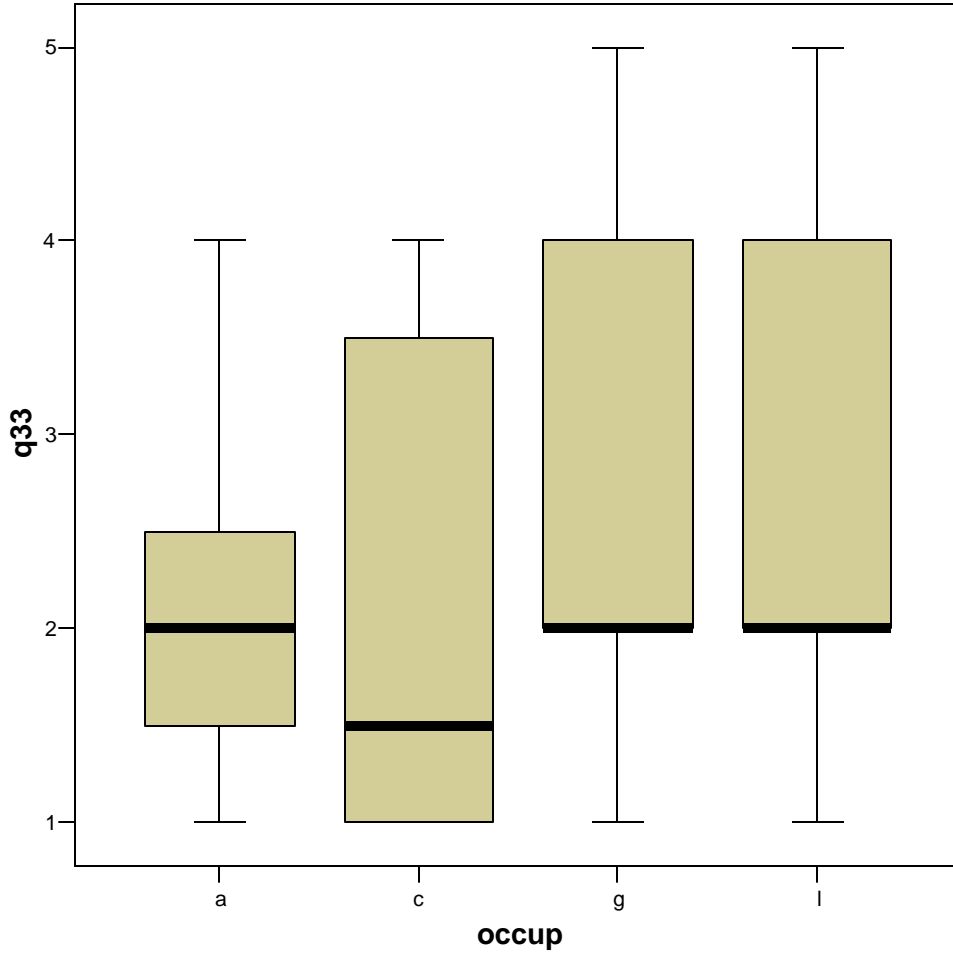
**Occupation (Occup):
Architect/Engineer/Owners/Others (a); Construction Managers (c); General Contractors (g); Lawyers (l)**

q32: Based on the contract language provided, the statement most accurately reflects the 1997 role played by the architect in the Changes in the Work contract provision...



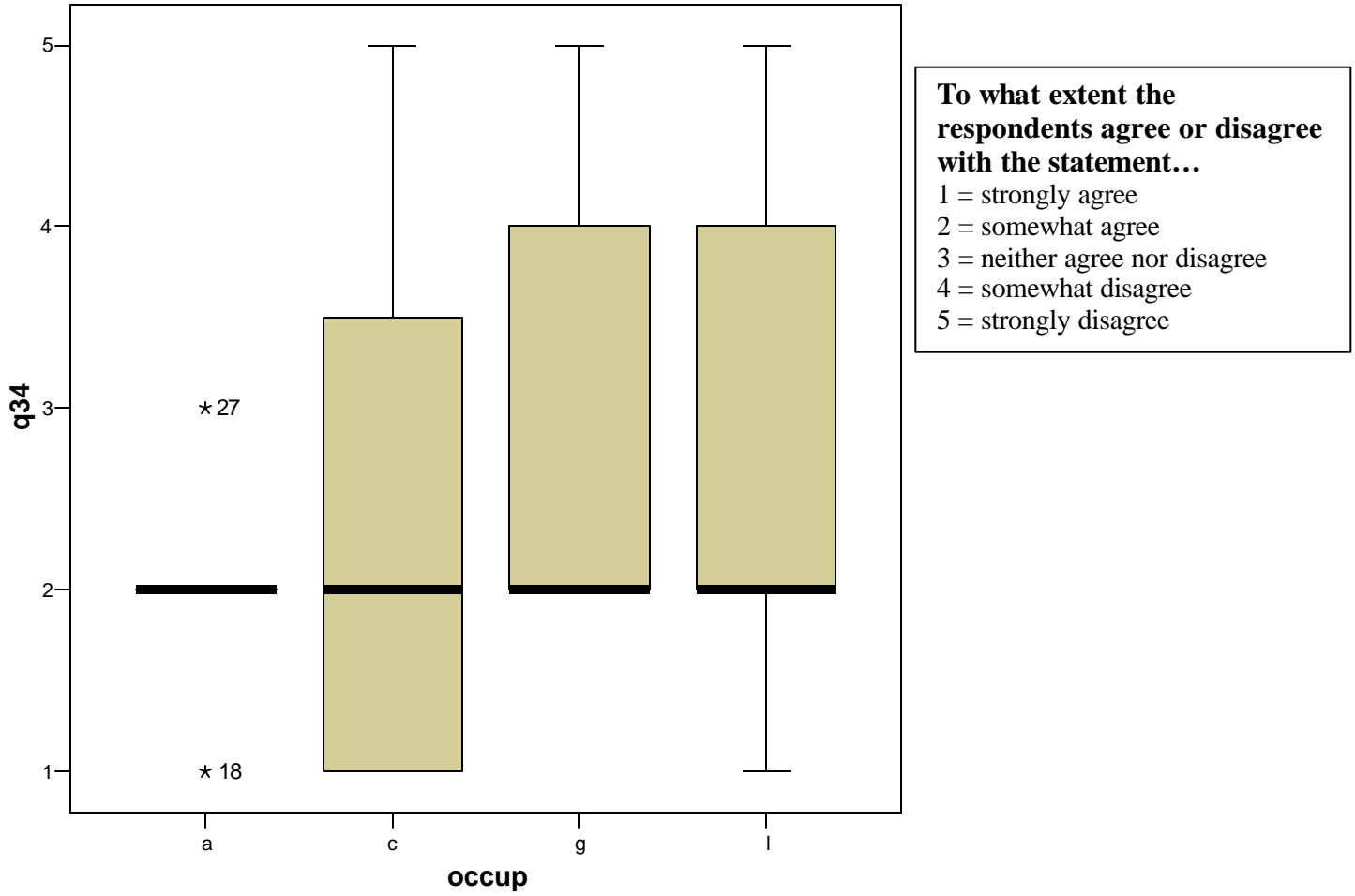
Role of the architect is viewed as...
 Active 1 = quasi-judicial role
 Active 2 = primary lead role
 Medium 3 = supervisory role
 Medium 4 = secondary support role
 Passive 5 = reviewer role
 Passive 6 = advisory role

q33: The evolution of the AIA A201 Changes in the Work provision from 1951 to 1997 represents an essential change, which has had a substantial effect on construction and contract administration roles and responsibilities.



To what extent the respondents agree or disagree with the statement...
1 = strongly agree
2 = somewhat agree
3 = neither agree nor disagree
4 = somewhat disagree
5 = strongly disagree

q34: The evolution of the AIA A201 Changes in the Work provision from 1951 to 1997 has directly affected the function of the architect.



Descriptives of the WHOLE population

Descriptive Statistics

	Median	Minimum	Maximum	Mean	Std. Deviation
q7	2	0	4	2.19	1.176
q8	4.5	0	6	4.00	1.967
q9	1	1	4	1.56	.716
q10	1	1	4	1.53	.718
q11	2	0	5	2.69	1.554
q12	3.5	0	6	3.47	2.094
q13	2	1	5	2.22	1.313
q14	2	1	5	2.19	1.281
q15	2	0	2	1.81	.592
q16	2	0	6	2.87	1.718
q17	3.5	0	5	3.25	1.586
q18	4	0	5	3.41	1.500
q19	2	0	6	2.97	1.823
q20	2	0	6	3.22	1.896
q21	4	0	5	3.81	1.447
q22	4	0	5	3.75	1.437
q23	2	0	5	2.38	1.540
q24	2	0	6	2.91	1.873
q25	2	0	5	2.28	1.326
q26	2	0	5	2.31	1.230
q27	4	0	5	3.69	1.533
q28	5	0	6	4.69	1.378
q29	2	1	5	2.25	1.164
q30	2	1	5	2.38	1.314
q31	2.5	0	6	3.00	1.704
q32	4	0	6	3.37	2.012
q33	2	1	5	2.47	1.344
q34	2	1	5	2.53	1.295
Valid N (listwise)	32				

APPENDIX C6 - INTERPRETATIONS OF STATISTICAL ANALYSIS

COMPLETE RESULTS AND INTERPRETATIONS OF PHASE II STATISTICAL ANALYSIS

As declared in Chapter 5.5.1 concerning **Part III: Key AIA A201 Provisions** of the survey (consisting of Questions 7a to Question 7g) is the core of the investigation of Phase II. Part III of the survey was designed to gauge the respondents' opinion regarding the effect that the change of key provisions in AIA A201 from 1951 to 1997 have had on the function of the architect and/or whether the resulting changes have improved or hindered the construction process and contract administration. The survey consists of a line of questioning within the following seven (7) contract provisions, which were ascertained from the implementation of Phase I, as reported in Chapter 4:

- Question 7a. Role of the Architect
- Question 7b. Dispute Resolution
- Question 7c. Ownership of Documents
- Question 7d. Final Payment
- Question 7e. Claims for Extra Cost
- Question 7f. Shop Drawings
- Question 7g. Changes in the Work

QUESTION 7A: ROLE OF THE ARCHITECT CONTRACT PROVISION

A description of the responses to Question 7A is captured in the below figure, Figure 1.

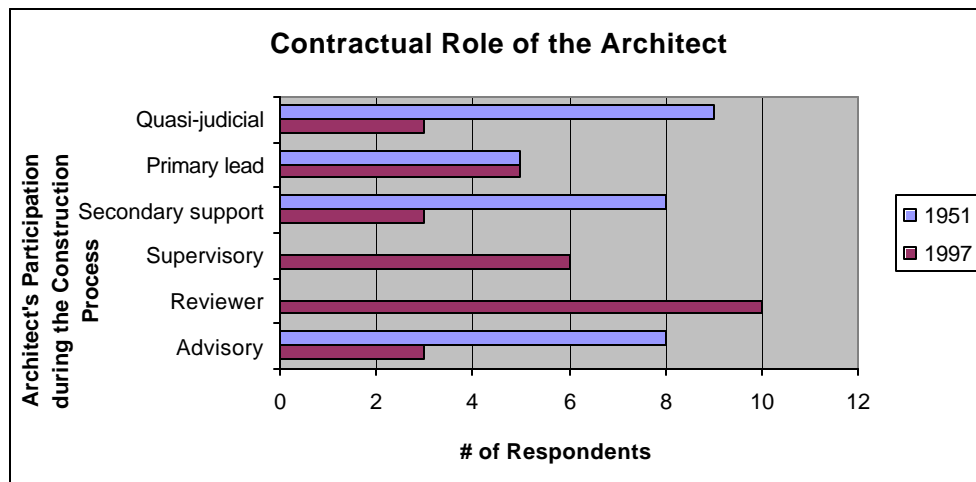


Figure 1: The Contractual Role of the Architect in the AIA A201 Role of the Architect Provision in 1951 and in 1997

Hypothesis H1a: The contractual role of the architect in the **Role of the Architect** provision diminished from 1951 to 1997 (renumbered to Q7 & Q8).

H1a0: The mean score for the contractual role of the architect in the **Role of the Architect** provision in 1951 is equal to the mean score for the contractual role of the architect in the **Role of the Architect** provision in 1997. (In other words, the contractual role did not change from 1951 to 1997.)

H1aA: The mean score for the contractual role of the architect in the **Role of the Architect** provision in 1951 is less than the mean score for the contractual role of the architect in the **Role of the Architect** provision in 1997, (In other words, the contractual role diminished from 1951 to 1997.)

Test Method: Paired Sample T-test and Wilcoxon Test (respectively, the parametric and the non-parametric test, as discussed in Chapter 3.3.4.2)

Test Results: For the Paired Sample T-test, the observed p-value is equal to 0.001, which is less than the universally accepted value of 0.05. Hence, the null hypothesis (*H1a0*) is rejected in favor of the alternative hypothesis (*H1aA*); and there exists a significant negative mean difference (-1.81) between scores in 1951 and 1997. The Wilcoxon Test for the two related samples was conducted and observed a significance of $0.001 < 0.05$, which agrees with the Paired Sample T-test.

Conclusion: The contractual role of the architect in the **Role of the Architect** provision diminished from 1951 to 1997, which agrees with the results shown in Figure 1, and agrees with the trend in the descriptive analysis shown below in Figure 2.

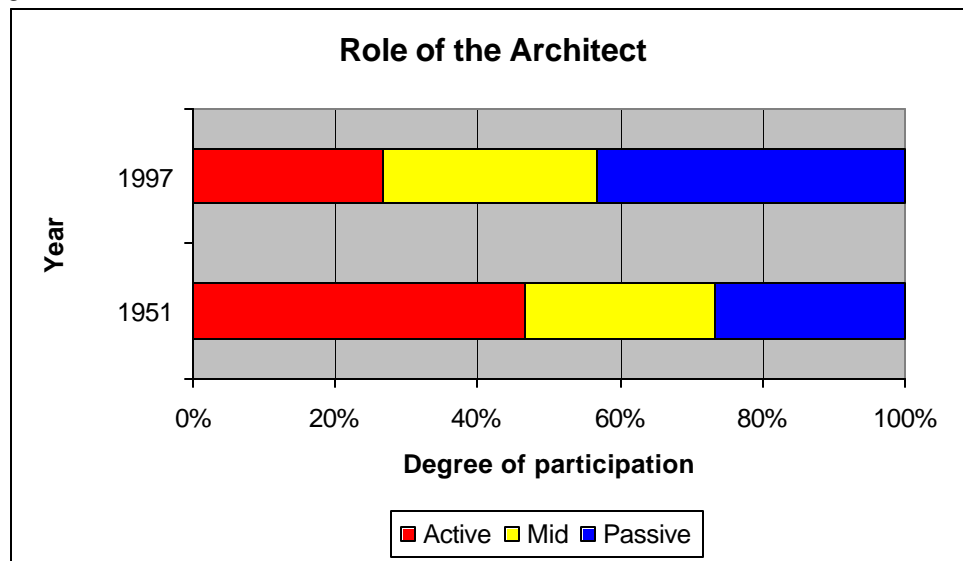


Figure 2: The Architect's Degree of Participation in the AIA A201 Role of the Architect Provision in 1951 and in 1997

Now, two auxiliary hypotheses relevant to the **Role of the Architect** provision are tested and the respondents' opinions are portrayed below in the descriptive analysis shown in Figure 3:

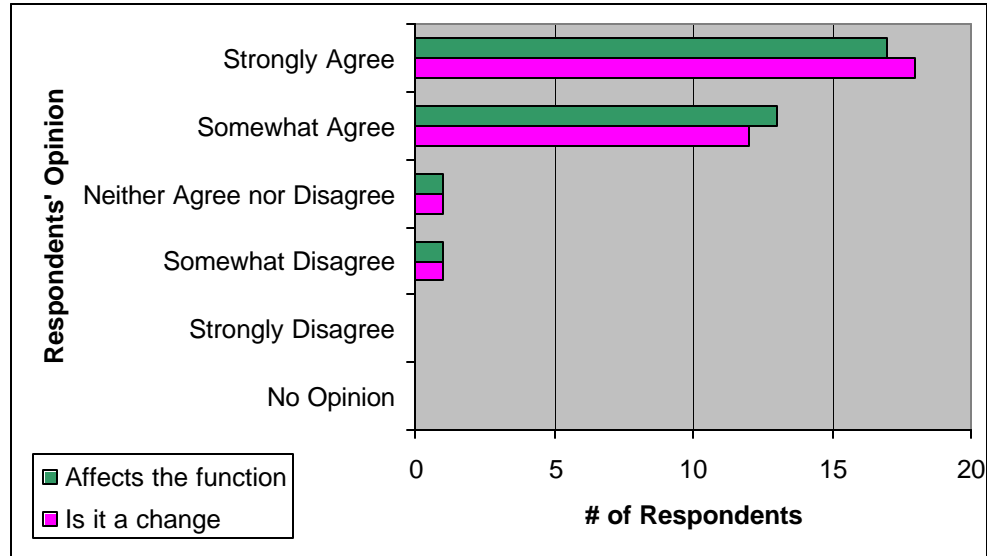


Figure 3: Change and impact of change of the AIA A201 Role of the Architect Provision

Hypothesis H1b: The change in the **Role of the Architect** provision from 1951 to 1997 has a substantial effect on the construction process and contract administration (renumbered to Q9).

H1b0: The mean score for the respondent's opinion on the substantial effect of the **Role of the Architect** provision on the construction process and contract administration is equal to the neutral value of 3. (In other words, the respondent 'neither agrees' nor 'disagrees' with the hypothesis.)

H1bA: The mean score for the respondent's opinion on the substantial effect of the **Role of the Architect** provision on the construction process and contract administration is less than the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.001, which is less than the universally accepted value of 0.05, and a mean difference of -1.44 . Hence, it is concluded that the mean score for the respondent's opinion on the substantial effect of the **Role of the Architect** provision on the construction process and contract administration is significantly less than neutral value of 3. Therefore, the null hypothesis (**H1b0**) is rejected in favor of the alternative hypothesis (**H1bA**). The opinions of the respondents is skewed towards 'strongly agree', which agrees with the descriptive results shown above in Figure 3.

Conclusion: The change in the **Role of the Architect** provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration

Hypothesis H1c: The change in the **Role of the Architect** provision from 1951 to 1997 has directly affected the function of the architect (renumbered to Q10).

H1c0: The mean score for the respondent's opinion on the substantial effect of the **Role of the Architect** provision on the function of the architect is equal to the neutral value of 3. (In other words, the respondent 'neither agrees' nor 'disagrees' with the hypothesis.)

H1cA: The mean score for the respondent's opinion on the substantial effect of the **Role of the Architect** provision on the function of the architect is less than the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.001, which is less than the universally accepted value of 0.05, and a mean difference of -1.47 . Therefore, the mean score for the respondent's opinion on the substantial effect of the **Role of the Architect** provision on the function of the architect is significantly less than neutral value of 3. Therefore, the null hypothesis ($H1c0$) is rejected in favor of the alternative hypothesis ($H1cA$). The opinions of the respondents is skewed towards 'strongly agree', which agrees with the descriptive results shown above in Figure 2 and 3.

Conclusion: The change in the **Role of the Architect** provision from 1951 to 1997 has had a substantial effect on the function of the architect.

QUESTION 7B: DISPUTE RESOLUTION CONTRACT PROVISION

A description of the responses to Question 7B is captured in the below figure, Figure 4.

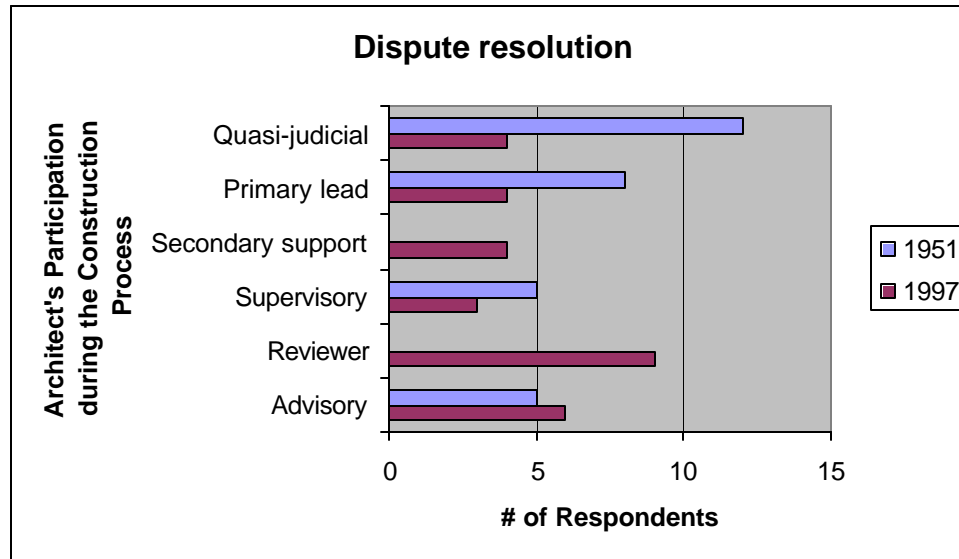


Figure 4: The Role of the Architect in the AIA A201 Dispute Resolution Provision in 1951 and in 1997

Hypothesis 2a: The contractual role of the architect in the **Dispute Resolution** provision diminished from 1951 to 1997 (renumbered to Q11 & Q2).

H2a0: The mean score for the contractual role of the architect in the **Dispute Resolution** provision in 1951 is equal to the mean score for the contractual role of the architect in the **Dispute Resolution** provision in 1997. (In other words, the contractual role did not change from 1951 to 1997.)

H2aA: The mean score for the contractual role of the architect in the **Dispute Resolution** provision in 1951 is less than the mean score for the contractual role of the architect in the **Dispute Resolution** provision in 1997. (In other words, the contractual role diminished from 1951 to 1997.)

Test Method: Paired Sample T-test and Wilcoxon Test

Test Results: For the Paired Sample T-test, the p-value is 0.04, which is less than the universally accepted value of 0.05; and there exists a significant negative mean difference (-0.78) between scores of 1951 and the scores of 1997. Therefore, the null hypothesis (*H2a0*) is rejected in favor of the alternative hypothesis (*H2aA*). The Wilcoxon Test for two related samples was conducted and observed a significance of $0.032 < 0.05$, which supports the Paired Sample T-test.

Conclusion: The contractual role of the architect in the **Dispute Resolution** provision diminished from 1951 to 1997, which agrees with the results shown above in Figure 4 and the descriptive analysis shown below in Figure 5.

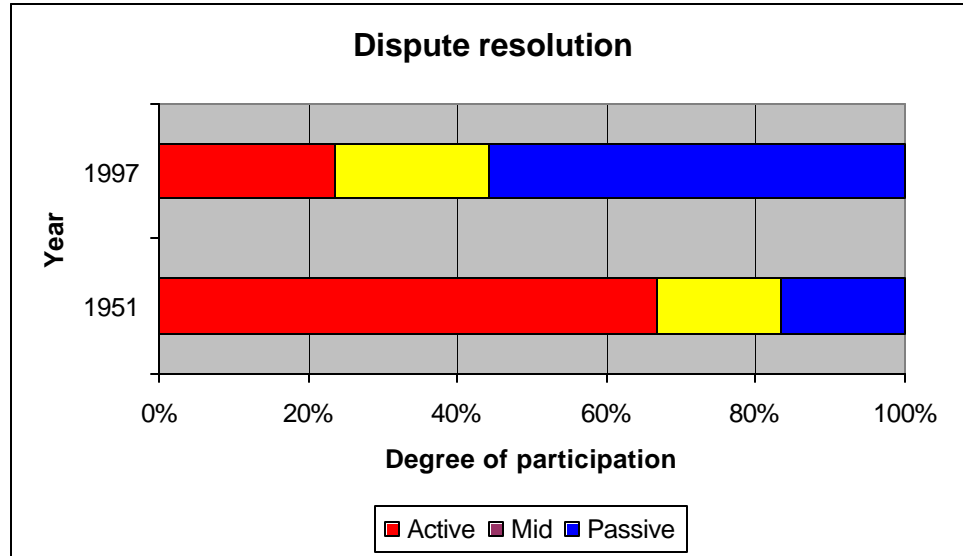


Figure 5: The Architect's Degree of Participation in the AIA A201 Dispute Resolution Provision in 1951 and in 1997

Now, two auxiliary hypotheses relevant to the **Dispute Resolution** provision are tested:

Hypothesis H2b: The change in the **Dispute Resolution** provision from 1951 to 1997 has a substantial effect on the construction process and contract administration (renumbered to Q13).

H2b0: The mean score for the respondent's opinion on the substantial effect of the **Dispute Resolution** provision on the construction process and contract administration is equal to the neutral value of 3. (In other words, the respondent 'neither agrees' nor 'disagrees' with the hypothesis.)

H2bA: The mean score for the respondent's opinion on the substantial effect of the **Dispute Resolution** provision on the construction process and contract administration is less than the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.002, which is less than the universally accepted value of 0.05, and a mean difference of -0.78 . Hence, the mean score for the respondent's opinion on the substantial effect of the **Dispute Resolution** provision on the function of the architect is considered less than neutral value of 3. Therefore, the null hypothesis (*H2b0*) is rejected in favor of the alternative hypothesis (*H2bA*). The opinions of the respondents is skewed towards 'strongly agree', which agrees with the descriptive results shown below in Figure 6.

Conclusion: The change in the **Dispute Resolution** provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration.

Hypothesis H2c: The change in the **Dispute Resolution** provision from 1951 to 1997 has a substantial effect on the function of the architect (renumbered to Q14).

H2c0: The mean score for the respondent’s opinion on the substantial effect of the **Dispute Resolution** provision on the function of the architect is equal to the neutral value of 3. (In other words, the respondent ‘neither agrees’ nor ‘disagrees’ with the hypothesis.)

H2cA: The mean score for the respondent’s opinion on the substantial effect of the **Dispute Resolution** provision on the function of the architect is less than the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of ‘strongly agree’ and ‘somewhat agree’.)

Test Method: Single Sample T-test

Test Results: The p-value is 0.001, which is less than the universally accepted value of 0.05 and there is a mean difference of -0.81 . Hence, the mean score for the respondent’s opinion on the substantial effect of the **Dispute Resolution** provision on the function of the architect is significantly less than neutral value of 3. Therefore, the null hypothesis (*H2c0*) is rejected in favor of the alternative hypothesis (*H2cA*). The opinions of the respondents is skewed towards ‘strongly agree’, which agrees with the descriptive results shown above in Figure 5 and 6.

Conclusion: The change in the **Dispute Resolution** provision from 1951 to 1997 has directly affected the function of the architect.

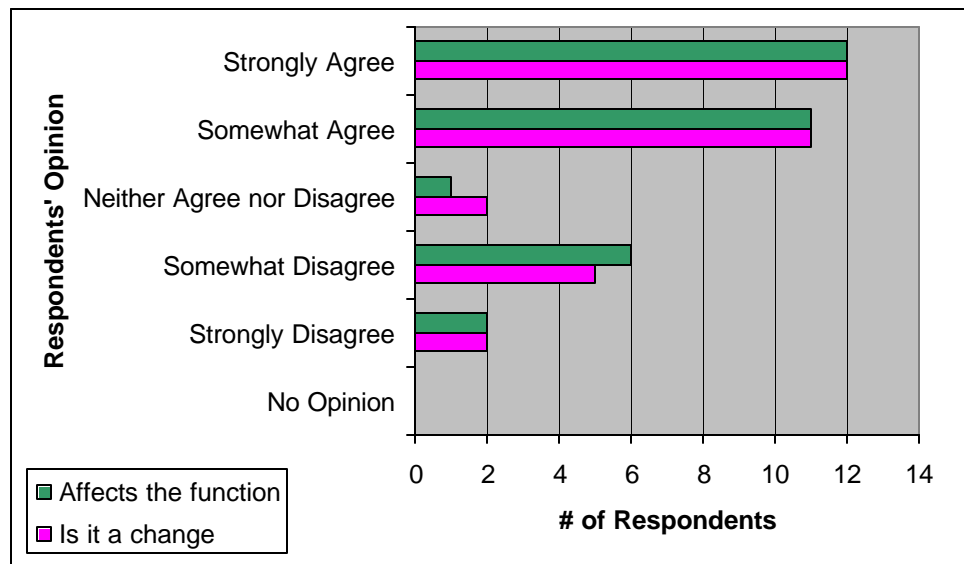


Figure 6: Change and impact of change of the AIA A201 Dispute Resolution Provision

QUESTION 7C: OWNERSHIP OF THE DOCUMENTS CONTRACT PROVISION

A description of the responses to Question 7C is captured in the below figure, Figure 7.

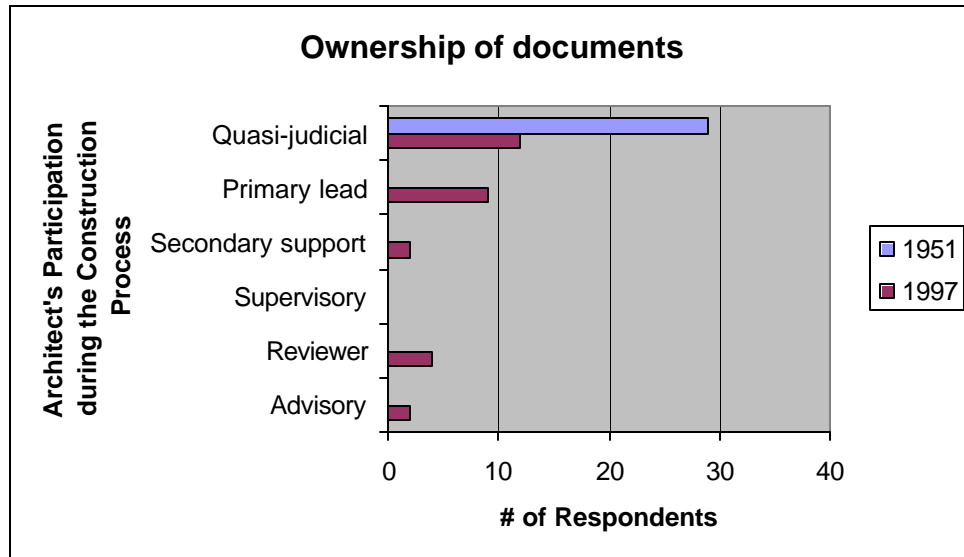


Figure 7: The Role of the Architect in the AIA A201 Ownership of Documents Provision in 1951 and in 1997

Hypothesis 3a: The contractual role of the architect in the **Ownership of the Documents** provision diminished from 1951 to 1997 (renumbered to Q15 & Q16).

H3a0: The mean score for the contractual role of the architect in the **Ownership of the Documents** provision in 1951 is equal to the mean score for the contractual role of the architect in the **Ownership of the Documents** provision in 1997. (In other words, the contractual role did not change from 1951 to 1997.)

H3aA: The mean score for the contractual role of the architect in the **Ownership of the Documents** provision in 1951 is less than the mean score for the contractual role of the architect in the **Ownership of the Documents** provision in 1997. (In other words, the contractual role diminished from 1951 to 1997.)

Test Method: Paired Sample T-test and Wilcoxon Test

Test Results: For the Paired Sample T-test, there is a p-value of 0.001, which is less than the universally accepted value of 0.05. Hence, the null hypothesis (*H3a0*) is rejected in favor of the alternative hypothesis (*H3aA*); and there exists a significant negative difference (-1.06) between scores in 1951 and 1997. The Wilcoxon Test for two related samples was conducted and observed a significance of $0.001 < 0.05$, which agrees with the Paired Sample T-test.

Conclusion: The contractual role of the architect in the **Ownership of the Documents** provision diminished from 1951 to 1997, which agrees with the results shown above in Figure 7 and the descriptive analysis shown below in Figure 8.

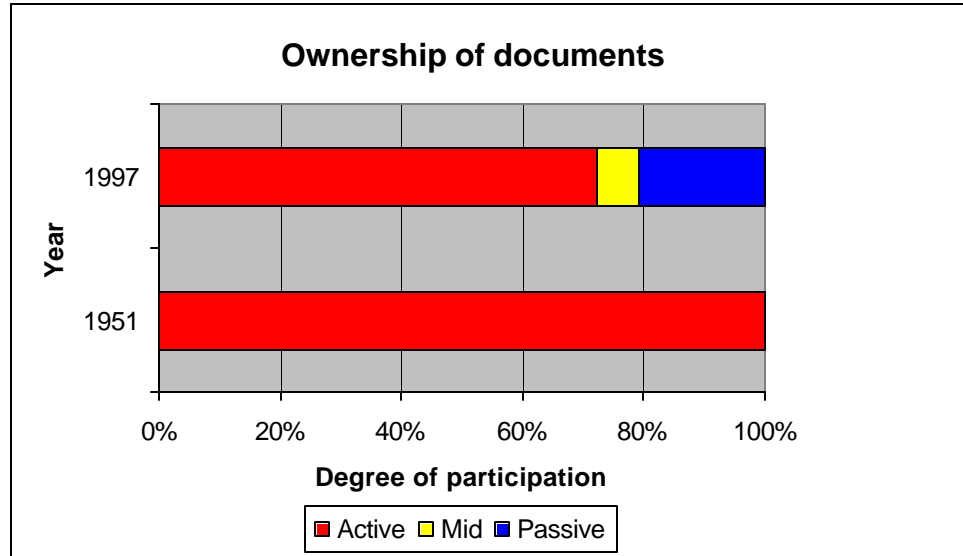


Figure 8: The Architect's Degree of Participation in the AIA A201 Ownership of Documents Provision in 1951 and in 1997

Now, two auxiliary hypotheses relevant to the **Ownership of Documents** provision are tested:

Hypothesis H3b: The change in the **Ownership of Documents** provision from 1951 to 1997 has a substantial effect on the construction process and contract administration (renumbered to Q17).

H3b0: The mean score for the respondent's opinion on the substantial effect of the **Ownership of Documents** provision on the construction process and contract administration is equal to the neutral value of 3. (In other words, the respondent 'neither agrees' nor 'disagrees' with the hypothesis.)

H3bA: The mean score for the respondent's opinion on the substantial effect of the **Ownership of Documents** provision on the construction process and contract administration is less than the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.379, which is **greater** than the universally accepted value of 0.05 and a mean difference of +0.25. Hence, the mean score for the respondent's opinion on the substantial effect of the **Ownership of Documents** provision on the function of the architect is **not** less than the neutral value of 3. Hence, the null hypothesis (**H3b0**) is accepted in lieu of the alternative hypothesis (**H3bA**). The opinions of the respondents is skewed towards 'somewhat disagree', which agrees with the descriptive results shown above in Figure 8.

Conclusion: The change in the **Ownership of Documents** provision from 1951 to 1997 has **not** had a substantial effect on the construction process and contract administration.

Hypothesis H3c: The change in the **Ownership of Documents** provision from 1951 to 1997 has a substantial effect on the function of the architect (renumbered to Q18).

H3c0: The mean score for the respondent's opinion on the substantial effect of the **Ownership of Documents** provision on the function of the architect is equal to the neutral value of 3. (In other words, the respondent 'neither agrees' nor 'disagrees' with the hypothesis.)

H3cA: The mean score for the respondent's opinion on the substantial effect of the **Ownership of Documents** provision on the function of the architect is less than the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: The p-value is 0.136, which is **greater** than the universally accepted value of 0.05 and a mean difference of +0.41. Hence, the mean score for the respondent's opinion on the substantial effect of the **Ownership of Documents** provision on the function of the architect is **not** less than neutral value of 3. Hence, the null hypothesis (*H3c0*) is accepted in lieu of the alternative hypothesis (*H3cA*). The opinions of the respondents is skewed towards 'somewhat disagree', which agrees with the descriptive results shown above in Figure 8 and below in Figure 9.

Conclusion: The change in the **Ownership of Documents** provision from 1951 to 1997 has **not** directly affected the function of the architect.

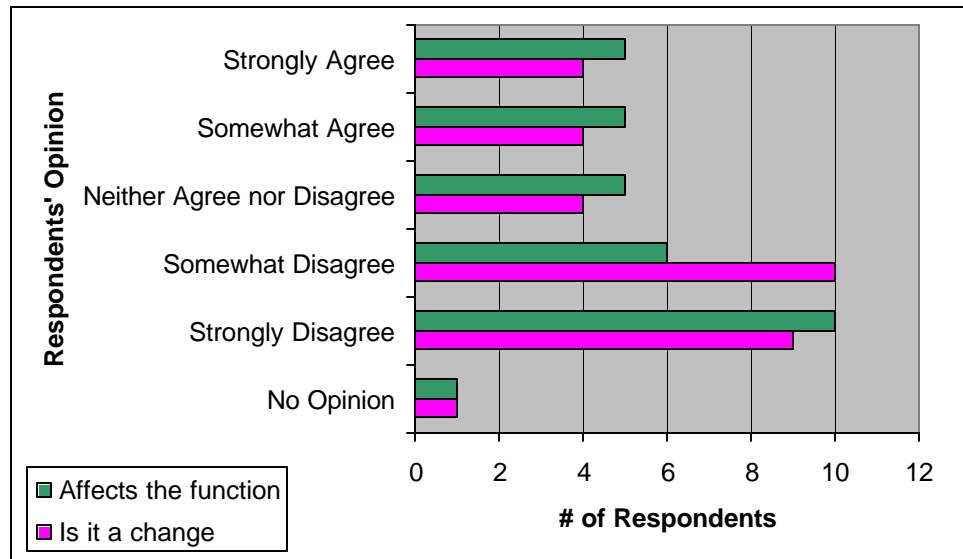


Figure 9: Change and impact of change of the AIA A201 Ownership of Documents Provision

QUESTION 7D: FINAL PAYMENT CONTRACT PROVISION

A description of the responses to Question 7D is captured in the below figure, Figure 10.

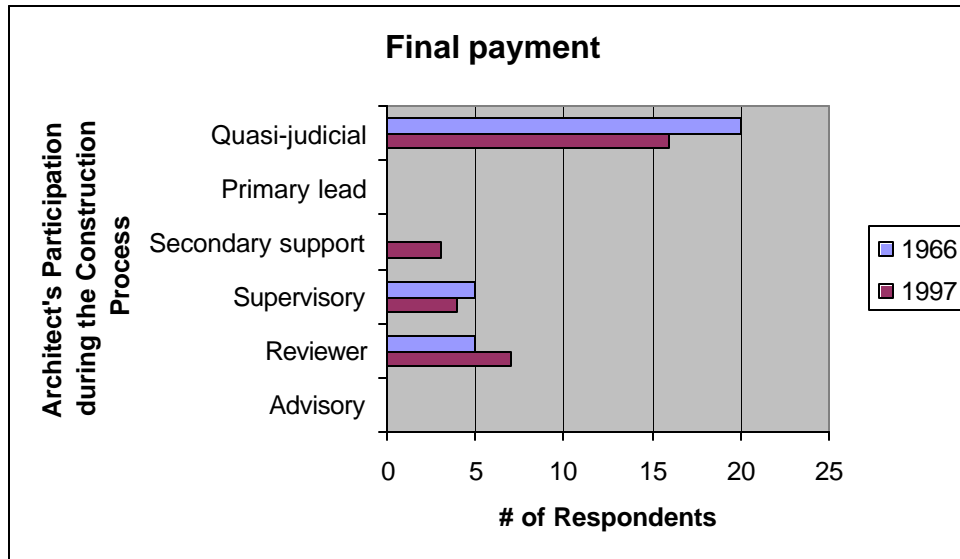


Figure 10: The Role of the Architect in the AIA A201 Final Payment Provision in 1966 and in 1997

Hypothesis H4a: The contractual role of the architect in the **Final Payment** provision diminished from 1966 to 1997 (renumbered to Q19 & Q20).

H4a0: The mean score for the contractual role of the architect in the **Final Payment** provision in 1951 is equal to the mean score for the contractual role of the architect in the **Final Payment** provision in 1997. (In other words, the contractual role did not change from 1951 to 1997.)

H4aA: The mean score for the contractual role of the architect in the **Final Payment** provision in 1951 is less than the mean score for the contractual role of the architect in the **Final Payment** provision in 1997. (In other words, the contractual role diminished from 1951 to 1997.)

Test Method: Paired Sample T-test and Wilcoxon Test

Test Results: For the Paired Sample T-test, the p-value is 0.508, which is **not** less than the universally accepted value of 0.05; and the mean difference between 1966 and 1997 is **not** considered a significant difference (-0.25). The results shown above in Figure 10 and the descriptive analysis shown below in Figure 11 indicate that there is a slight difference in the degree of participation of the architect during the construction process, but the statistical results indicate that the slight difference is not significant to reject the null hypothesis. Hence, the null hypothesis (*H4a0*) is accepted in lieu of the alternative hypothesis (*H4aA*). The Wilcoxon Test for two related samples was conducted and observed a significance of $0.440 > 0.05$, which supports the Paired Sample T-test.

Conclusion: The contractual role of the architect in the **Final Payment** provision did **not** diminish from 1966 to 1997.

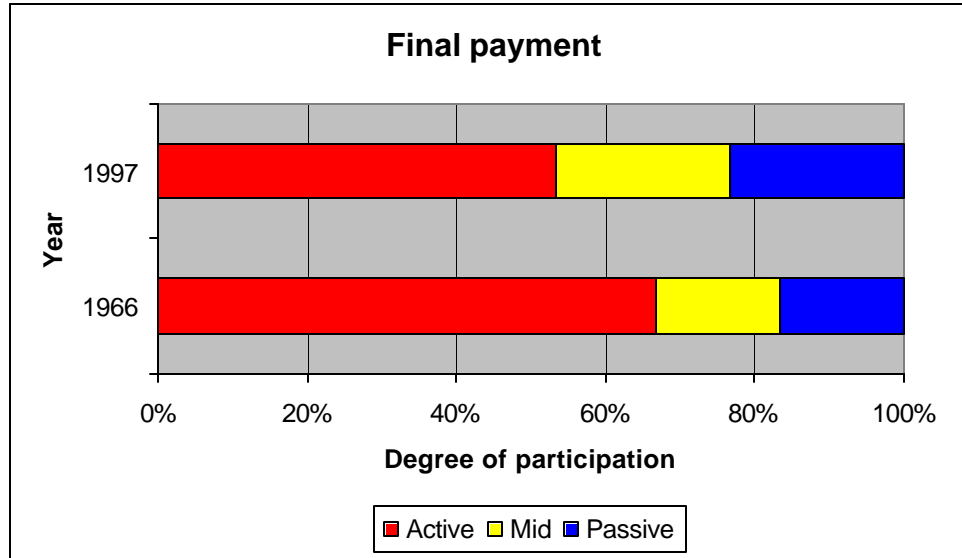


Figure 11: The Architect's Degree of Participation in the AIA A201 Final Payment Provision in 1966 and in 1997

Now, two auxiliary hypotheses relevant to the **Final Payment** provision are tested:

Hypothesis H4b: The change in the **Final Payment** provision from 1966 to 1997 has a substantial effect on the construction process and contract administration (renumbered to Q21).

H4b0: The mean score for the respondent's opinion on the substantial effect of the **Final Payment** provision on the construction process and contract administration is equal to the neutral value of 3. (In other words, the respondent 'neither agrees' nor 'disagrees' with the hypothesis.)

H4bA: The mean score for the respondent's opinion on the substantial effect of the **Final Payment** provision on the construction process and contract administration is less than the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: The p-value is 0.003, which is less than the universally accepted value of 0.05 and a positive mean difference of +0.81. Hence, the mean score for the respondent's opinion on the substantial effect of the **Final Payment** provision on the function of the architect is **not** significantly less than neutral value of 3. Hence, the null hypothesis (*H4b0*) is accepted in lieu of the alternative hypothesis (*H4bA*). The opinions of the respondents is skewed towards 'strongly disagree', which agrees with the results reported above in Figure 11.

Conclusion: The change in the **Final Payment** provision from 1966 to 1997 has **not** had a substantial effect on the construction process and contract administration.

Hypothesis H4c: The change in the **Final Payment** provision from 1966 to 1997 has a substantial effect on the function of the architect (renumbered to Q22).

H4c0: The mean score for the respondent’s opinion on the substantial effect of the **Final Payment** provision on the function of the architect is equal to the neutral value of 3. (In other words, the respondent ‘neither agrees’ nor ‘disagrees’ with the hypothesis.)

H4cA: The mean score for the respondent’s opinion on the substantial effect of the **Final Payment** provision on the function of the architect is less than the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of ‘strongly agree’ and ‘somewhat agree’.)

Test Method: Single Sample T-test

Test Results: The p-value is 0.006, which is **less** than the universally accepted value of 0.05 and a mean difference of +0.75. Hence, the mean score for the respondent’s opinion on the substantial effect of the **Final Payment** provision on the function of the architect is **not** less than neutral value of 3. The opinions of the respondents is skewed towards ‘strongly disagree’, which agrees with the results reported above in Figure 11 and below in Figure 12. Hence, the null hypothesis (*H4c0*) is accepted in lieu of the alternative hypothesis (*H4cA*).

Conclusion: The change in the **Final Payment** provision from 1966 to 1997 has **not** directly affected the function of the architect.

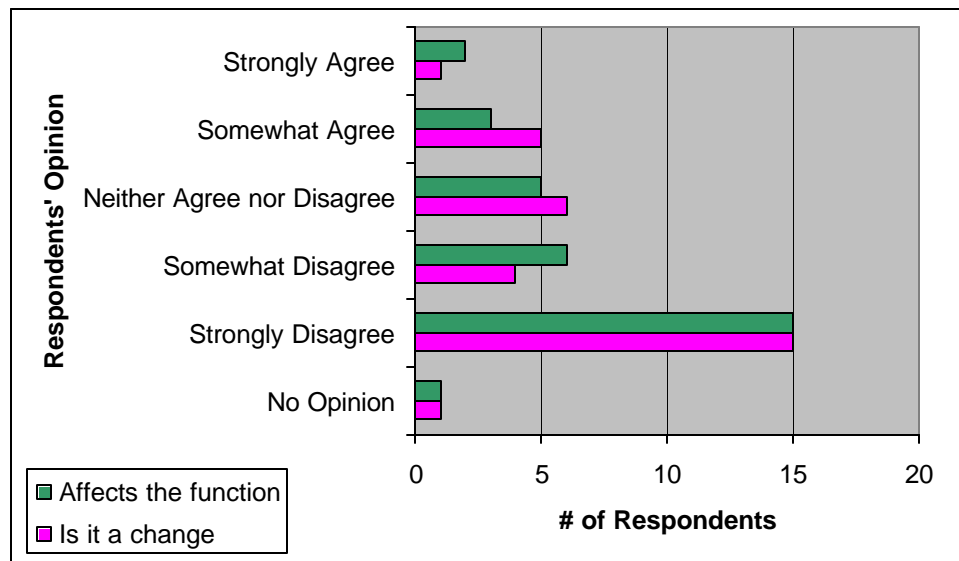


Figure 12: Change and impact of change of the AIA A201 Final Payment Provision

QUESTION 7E: CLAIMS CONTRACT PROVISION

A description of the responses to Question 7E is captured in the below figure, Figure 13.

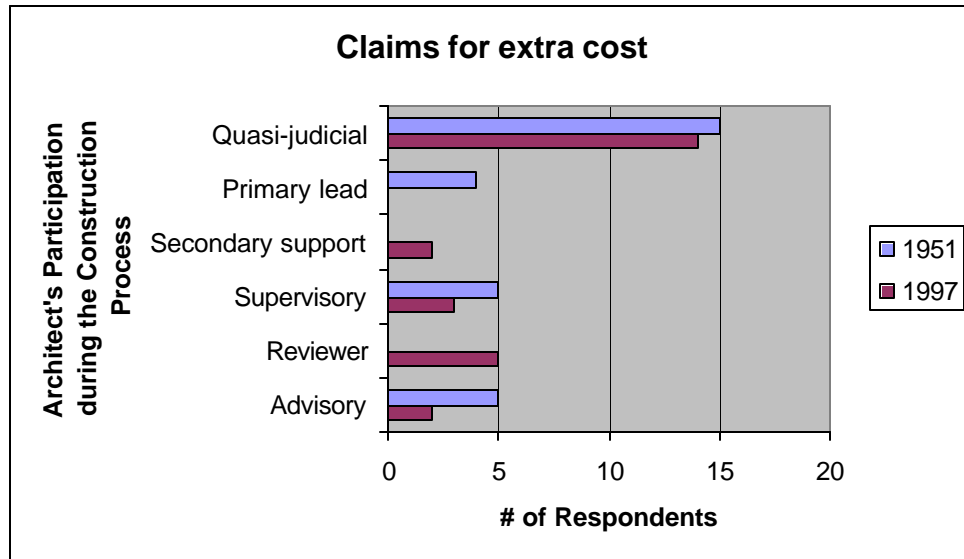


Figure 13: The Role of the Architect in the AIA A201 Claims for Extra Cost Provision in 1951 and in 1997

Hypothesis H5a: The contractual role of the architect in the **Claims for Extra Cost** provision diminished from 1951 to 1997 (renumbered to Q23 & Q24).

H5a0: The mean score for the contractual role of the architect in the **Claims for Extra Cost** provision in 1951 is equal to the mean score for the contractual role of the architect in the **Claims for Extra Cost** provision in 1997. (In other words, the contractual role did not change from 1951 to 1997.)

H5aA: The mean score for the contractual role of the architect in the **Claims for Extra Cost** provision in 1951 is less than the mean score for the contractual role of the architect in the **Claims for Extra Cost** provision in 1997. (In other words, the contractual role diminished from 1951 to 1997.)

Test Method: Paired Sample T-test and Wilcoxon Test

Test Results: For the Paired Sample T-test, there is a p-value of 0.077, which is **not** less than the universally accepted value of 0.05; and the difference between 1951 and 1997 is **not** considered a significant difference of -0.53. The results shown above in Figure 13 and the descriptive analysis shown below in Figure 14 indicate that there is a slight difference in the degree of participation of the architect during the construction process, but the statistical results indicate that the slight difference is not significant to reject the null hypothesis. Hence, the null hypothesis (*H5a0*) is accepted in lieu of the alternative hypothesis (*H5aA*). The Wilcoxon Test for two related samples was conducted and observed a significance of $0.094 > 0.05$, which supports the Paired Sample T-test.

Conclusion: The contractual role of the architect in the **Claims for Extra Cost** provision did **not** diminish from 1951 to 1997.

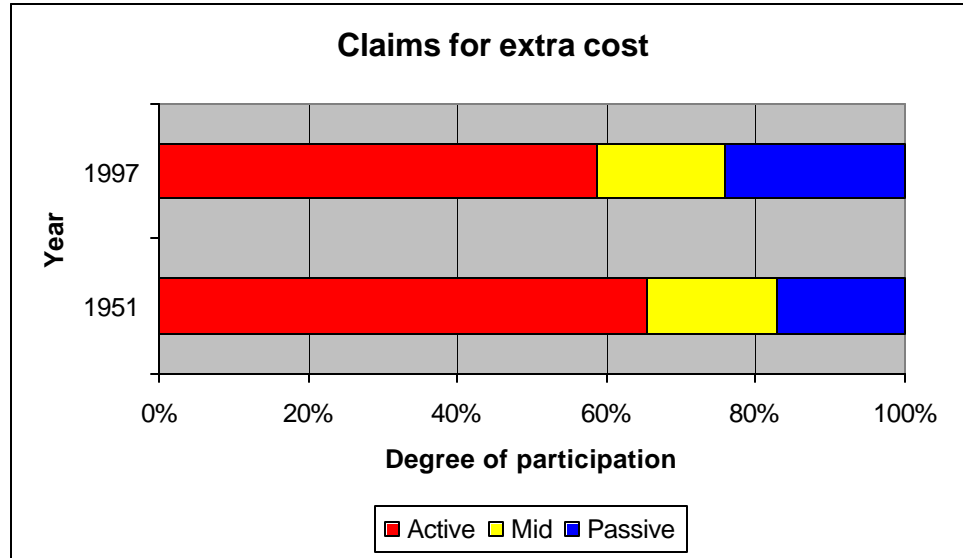


Figure 14: The Architect's Degree of Participation in the AIA A201 Claims for Extra Cost Provision in 1951 and in 1997

Now, two auxiliary hypotheses relevant to the **Claims for Extra Cost** provision are tested:

Hypothesis H5b: The change in the **Claims for Extra Cost** provision from 1951 to 1997 has a substantial effect on the construction process and contract administration (renumbered to Q25).

H5b0: The mean score for the respondent's opinion on the substantial effect of the **Claims for Extra Cost** provision on the construction process and contract administration is equal to the neutral value of 3. (In other words, the respondent 'neither agrees' nor 'disagrees' with the hypothesis.)

H5bA: The mean score for the respondent's opinion on the substantial effect of the **Claims for Extra Cost** provision on the construction process and contract administration is less than the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.004, which is less than the universally accepted value of 0.05, and a mean difference of -0.72 . Hence, the mean score for the respondent's opinion on the substantial effect of the **Claims for Extra Cost** provision on the function of the architect is considered less than neutral value of 3. Therefore, the null hypothesis (*H5b0*) is rejected in favor of the alternative hypothesis (*H5bA*). The opinions of the respondents is skewed towards 'somewhat agree', which agrees with the results reported above in Figure 14.

Conclusion: The change in the **Claims for Extra Cost** provision from 1951 to 1997 has had a substantial effect on the construction process and contract administration.

Hypothesis H5c: The change in the **Claims for Extra Cost** provision from 1951 to 1997 has a substantial effect on the function of the architect (renumbered to Q26).

H5c0: The mean score for the respondent's opinion on the substantial effect of the **Claims for Extra Cost** provision on the function of the architect is equal to the neutral value of 3. (In other words, the respondent 'neither agrees' nor 'disagrees' with the hypothesis.)

H5cA: The mean score for the respondent's opinion on the substantial effect of the **Claims for Extra Cost** provision on the function of the architect is less than the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: The p-value is 0.003, which is less than the universally accepted value of 0.05 and there is a mean difference of -0.69. Hence, the mean score for the respondent's opinion on the substantial effect of the **Claims for Extra Cost** provision on the function of the architect is significantly less than neutral value of 3. Therefore, the null hypothesis (*H5c0*) is rejected in favor of the alternative hypothesis (*H5cA*). The opinions of the respondents is skewed towards 'strongly agree', which agrees with the descriptive results shown above in Figure 14 and below in 15.

Conclusion: The change in the **Claims for Extra Cost** provision from 1951 to 1997 has directly affected the function of the architect.

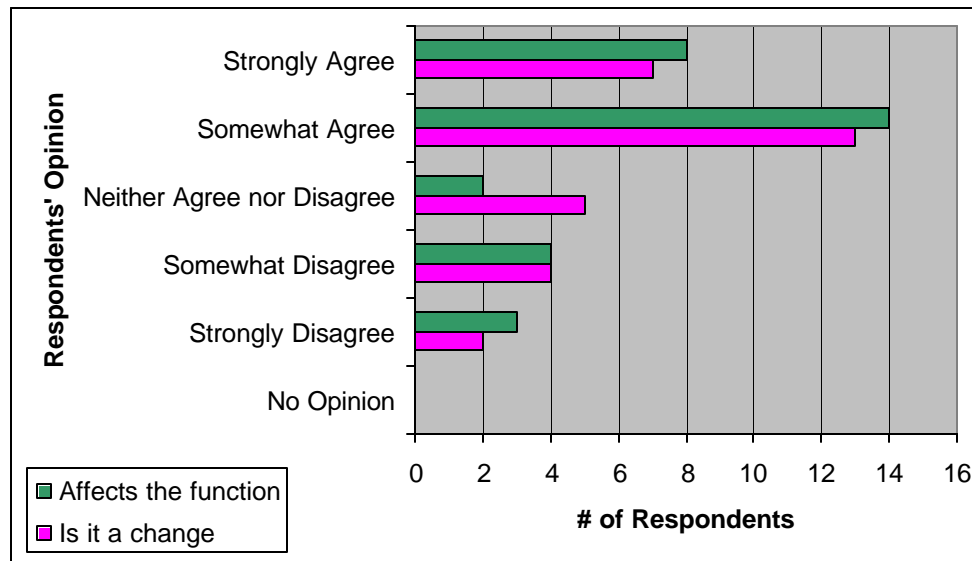


Figure 15: Change and impact of change of the AIA A201 Claims for Extra Cost Provision

QUESTION 7F: SHOP DRAWINGS CONTRACT PROVISION

A description of the responses to Question 7F is captured in the below figure, Figure 16.

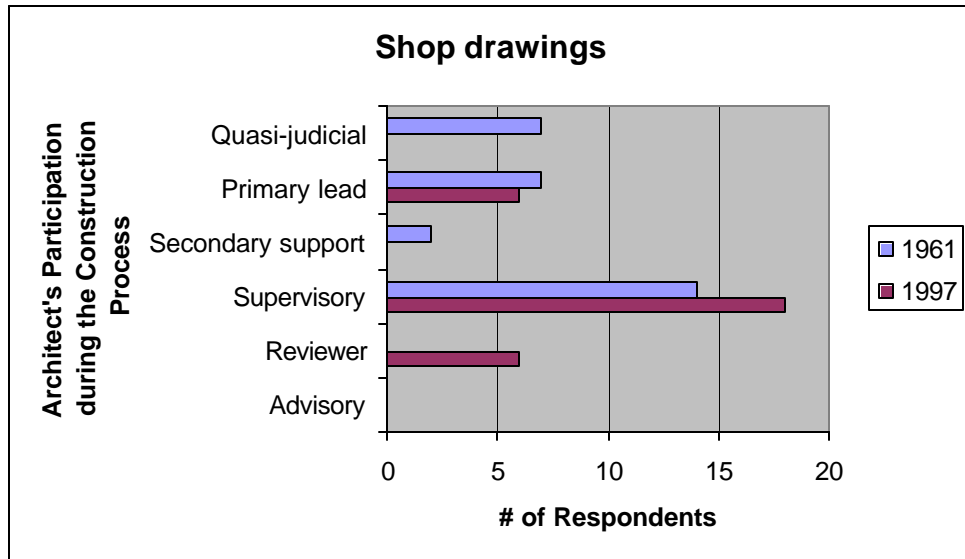


Figure 16: The Role of the Architect in the AIA A201 Shop Drawing Provision in 1961 and in 1997

Hypothesis H6a: The contractual role of the architect in the **Shop Drawings** provision diminished from 1961 to 1997 (renumbered to Q27 & Q28).

H6a0: The mean score for the contractual role of the architect in the **Shop Drawings** provision in 1961 is equal to the mean score for the contractual role of the architect in the **Shop Drawings** provision in 1997. (In other words, the contractual role did not change from 1961 to 1997.)

H6aA: The mean score for the contractual role of the architect in the **Shop Drawings** provision in 1961 is less than the mean score for the contractual role of the architect in the **Shop Drawings** provision in 1997. (In other words, the contractual role diminished from 1961 to 1997.)

Test Method: Paired Sample T-test and Wilcoxon Test

Test Results: For the Paired Sample T-test, there is a p-value of 0.001, which is less than the universally accepted value of 0.05; and there exists a significant negative difference (-1.00) between scores in 1961 and 1997. Hence, the null hypothesis (*H6a0*) is rejected in favor of the alternative hypothesis (*H6aA*). The Wilcoxon Test for two related samples was conducted and observed a significance of $0.001 < 0.05$, which agrees with the Paired Sample T-test.

Conclusion: The contractual role of the architect in the **Shop Drawings** provision diminished from 1961 to 1997, which agrees with the results shown above in Figure 16 and the descriptive analysis shown below in Figure 17.

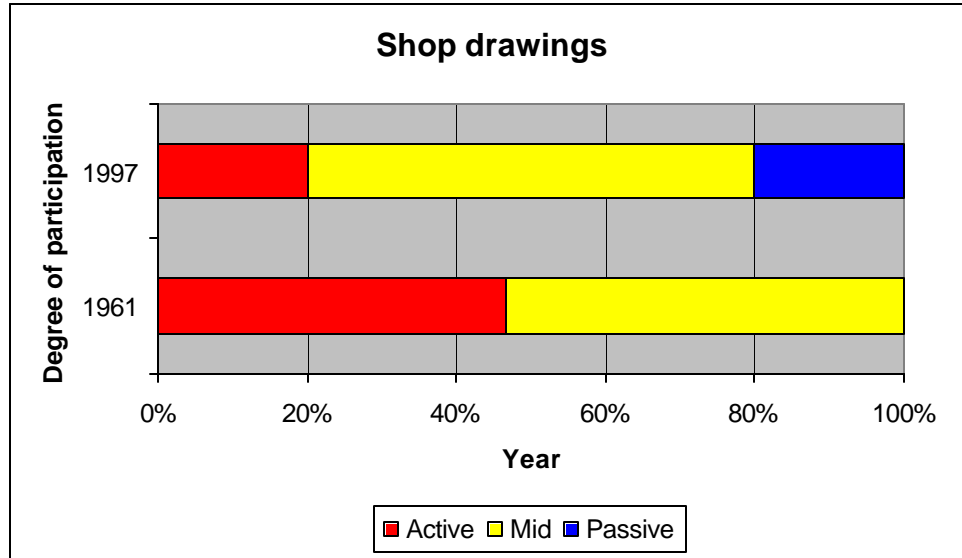


Figure 17: The Architect's Degree of Participation in the AIA A201 Shop Drawings Provision in 1961 and in 1997

Now, two auxiliary hypotheses relevant to the **Shop Drawings** provision are tested:

Hypothesis H6b: The change in the **Shop Drawings** provision from 1961 to 1997 has a substantial effect on the construction process and contract administration (renumbered to Q29).

H6b0: The mean score for the respondent's opinion on the substantial effect of the **Shop Drawings** provision on the construction process and contract administration is equal to the neutral value of 3. (In other words, the respondent 'neither agrees' nor 'disagrees' with the hypothesis.)

H6bA: The mean score for the respondent's opinion on the substantial effect of the **Shop Drawings** provision on the construction process and contract administration is less than the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.001, which is less than the universally accepted value of 0.05 and a negative mean difference of -0.75. Hence, the mean score for the respondent's opinion on the substantial effect of the **Shop Drawings** provision on the function of the architect is significantly less than the neutral value of 3. Therefore, the null hypothesis (*H6b0*) is rejected in favor of the alternative hypothesis (*H6bA*). The opinions of the respondents is skewed towards 'somewhat agree', which agrees with the results reported above in Figure 17.

Conclusion: The change in the **Shop Drawings** provision from 1961 to 1997 has had a substantial effect on the construction process and contract administration.

Hypothesis H6c: The change in the **Shop Drawings** provision from 1961 to 1997 has a substantial effect on the function of the Architect (renumbered to Q30).

H6c0: The mean score for the respondent's opinion on the substantial effect of the **Shop Drawings** provision on the function of the architect is equal to the neutral value of 3. (In other words, the respondent 'neither agrees' nor 'disagrees' with the hypothesis.)

H6cA: The mean score for the respondent's opinion on the substantial effect of the **Shop Drawings** provision on the function of the architect is less than the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: The p-value is 0.011, which is less than the universally accepted value of 0.05 and there is a mean difference of -0.63. Hence, the mean score for the respondent's opinion on the substantial effect of the **Shop Drawings** provision on the function of the architect is significantly less than neutral value of 3. Therefore, the null hypothesis (**H6c0**) is rejected in favor of the alternative hypothesis (**H6cA**). The opinions of the respondents is skewed towards 'strongly agree', which agrees with the descriptive results shown above in Figure 17 and below in Figure 18.

Conclusion: The change in the **Shop Drawings** provision from 1961 to 1997 has directly affected the function of the architect.

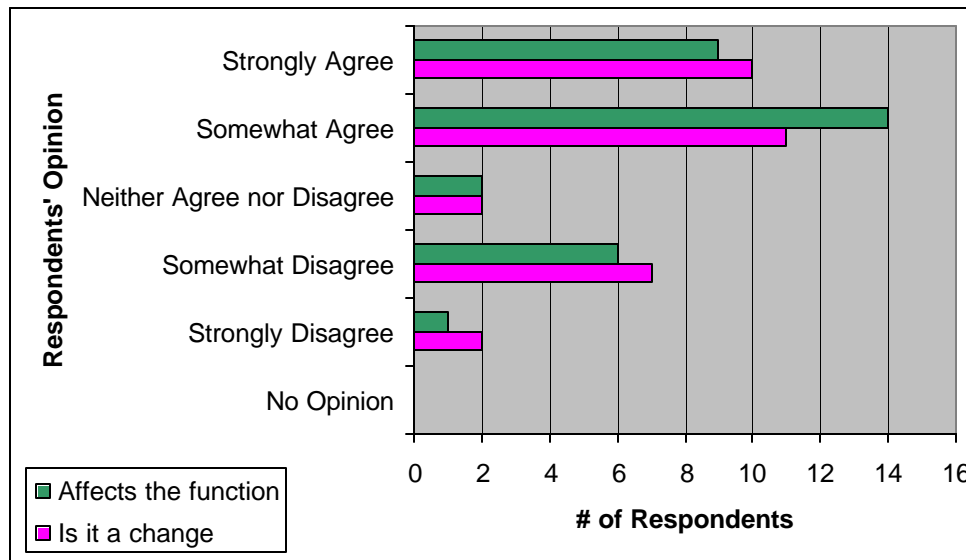


Figure 18: Change and impact of change of the AIA A201 Shop Drawings Provision

QUESTION 7G: CHANGES IN THE WORK CONTRACT PROVISION

A description of the responses to Question 7G is captured in the below figure, Figure 19.

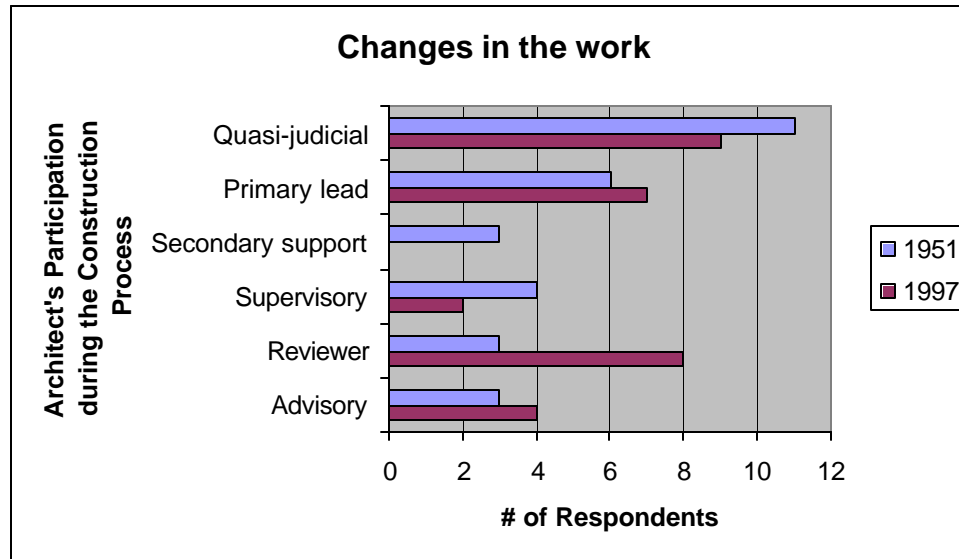


Figure 19: The Role of the Architect in the AIA A201 Changes in the Work Provision in 1951 and in 1997

Hypothesis H7a: The contractual role of the architect in the **Changes in the Work** provision diminished from 1951 to 1997 (renumbered to Q31 & Q32).

H7a0: The mean score for the contractual role of the architect in the **Changes in the Work** provision in 1951 is equal to the mean score for the contractual role of the architect in the **Changes in the Work** provision in 1997. (In other words, the contractual role did not change from 1951 to 1997.)

H7aA: The mean score for the contractual role of the architect in the **Changes in the Work** provision in 1951 is less than the mean score for the contractual role of the architect in the **Changes in the Work** provision in 1997. (In other words, the contractual role diminished from 1951 to 1997.)

Test Method: Paired Sample T-test and Wilcoxon Test

Test Results: For the Paired Sample T-test, the p-value is 0.155, which is **not** less than the universally accepted value of 0.05; and there is **not** a significant negative (-0.38) difference between scores in 1951 and 1997. The results shown above in Figure 19 and the descriptive analysis shown below in Figure 20 indicate that there is a slight difference in the degree of participation of the architect during the construction process, but the statistical results indicate that the slight difference is not significant to reject the null hypothesis. Hence, the null hypothesis (*H7a0*) is accepted in lieu of the alternative hypothesis (*H7aA*). The Wilcoxon Test for two related samples was conducted and observed a significance of $0.166 > 0.05$, which supports the Paired Sample T-test.

Conclusion: The contractual role of the architect in the **Changes in the Work** provision did **not** diminish from 1951 to 1997.

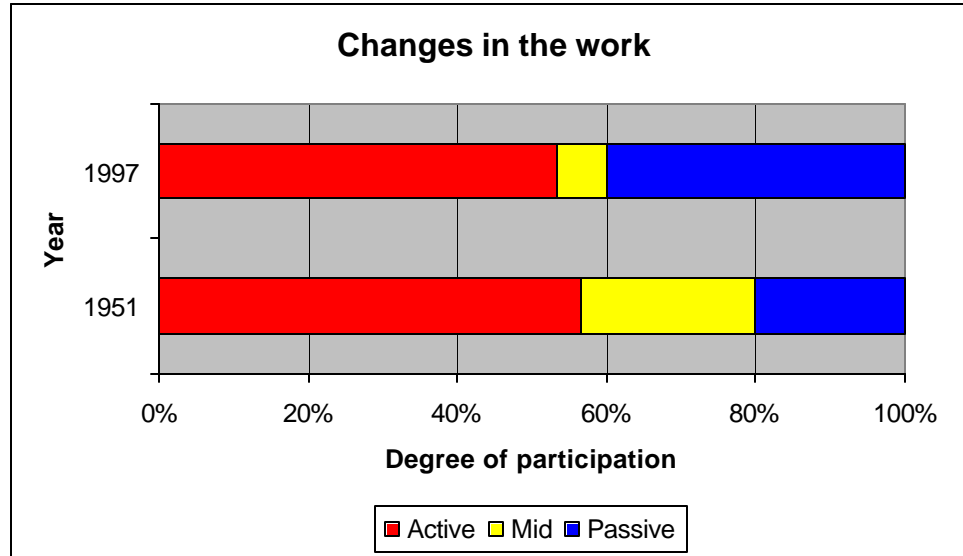


Figure 20: The Architect's Degree of Participation in the AIA A201 Changes in the Work Provision in 1951 and in 1997

Now, two auxiliary hypotheses relevant to the **Changes in the Work** provision are tested:

Hypothesis H7b: The change in the **Changes in the Work** provision from 1951 to 1997 has a substantial effect on the construction process and contractual administration (renumbered to Q33).

H7b0: The mean score for the respondent's opinion on the substantial effect of the **Changes in the Work** provision on the construction process and contract administration is equal to the neutral value of 3. (In other words, the respondent 'neither agrees' nor 'disagrees' with the hypothesis.)

H7bA: The mean score for the respondent's opinion on the substantial effect of the **Changes in the Work** provision on the construction process and contract administration is less than the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.033, which is less than the universally accepted value of 0.05 and a negative mean difference of -0.53. Hence, the mean score for the respondent's opinion on the substantial effect of the **Changes in the Work** provision on the function of the architect is significantly less than the neutral value of 3. Therefore, the null hypothesis (*H7b0*) is rejected in favor of the alternative hypothesis (*H7bA*). The opinions of the respondents is skewed towards 'somewhat agree', which agrees with the results reported below in Figure 21.

Conclusion: The change in the **Changes in the Work** provision from 1951 to 1997 has had a substantial effect on the construction process and contractual administration.

Hypothesis H7c: The change in the **Changes in the Work** provision from 1951 to 1997 has a substantial effect on the function of the architect (renumbered to Q34).

H7c0: The mean score for the respondent's opinion on the substantial effect of the **Changes in the Work** provision on the function of the architect is equal to the neutral value of 3. (In other words, the respondent 'neither agrees' nor 'disagrees' with the hypothesis.)

H7cA: The mean score for the respondent's opinion on the substantial effect of the **Changes in the Work** provision on the function of the architect is less than the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: The p-value is 0.049, which is less than the universally accepted value of 0.05 and there is a mean difference of -0.47. Hence, the mean score for the respondent's opinion on the substantial effect of the **Changes in the Work** provision on the function of the architect is less than neutral value of 3. Therefore, the null hypothesis (**H7c0**) is rejected in favor of the alternative hypothesis (**H7cA**). The opinions of the respondents is skewed towards 'strongly agree', which agrees with the descriptive results shown above in Figure 20 and below in Figure 21.

Conclusion: The change in the **Changes in the Work** provision from 1951 to 1997 has directly affected the function of the architect.

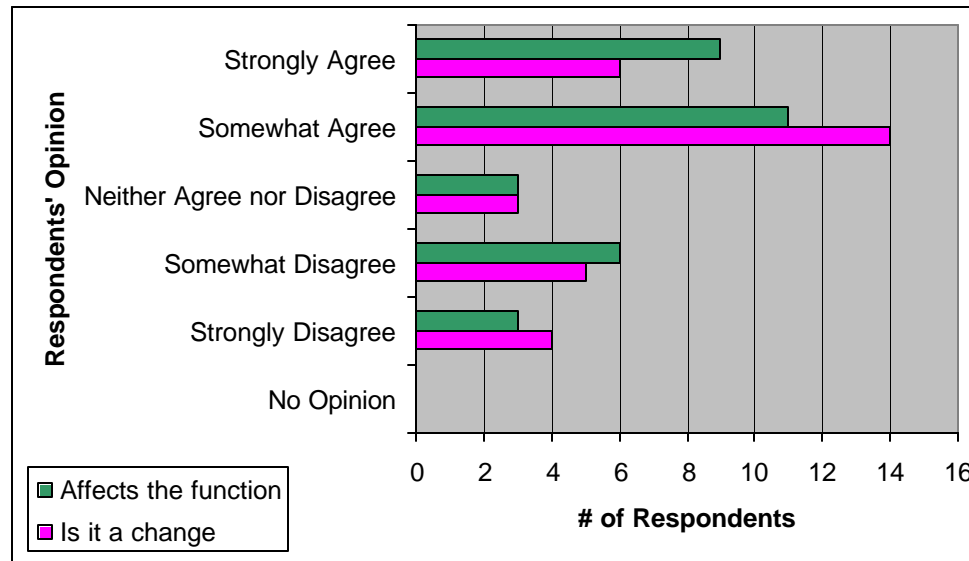


Figure 21: Change and impact of change of the AIA A201 Changes in the Work Provision

Appendix D

APPENDIX D1 – CORRESPONDENCES



May 31, 2005

PRE-NOTICE LETTER (Phase 3)

Name _____

Title _____

Company _____

City, State Zip Code _____

Dear Mr./Mrs./Dr. _____:

I am a Ph.D. Candidate at Virginia Tech. For my dissertation research, I am conducting a study of the perception of the industry's owner-population on the value-added benefit of the design professional's services during construction and contract administration. This study seeks to investigate changes to key provisions in the AIA A201 General Conditions of Contract and their impact on the perception of the value-added benefit of the services provided by the design professional during the construction process. In a few days from now, you will receive in the mail a request to fill out a brief questionnaire for this important research project.

I am writing in advance, because we have found many people like to know ahead of time that they will be contacted for participation. The contribution of your experiences and opinions to this important study is greatly appreciated.

It is only with the generous help of people like you that our research can be successful. If you have any questions, please contact me at roxene@vt.edu / (202) 251-6979 or Dr. Michael Vorster at mikev@vt.edu / (540) 231-5009. Thank you for your time and consideration.

Sincerely,

Roxene M. Thompson
Ph.D. Candidate



June 3, 2005

Name _____
Title _____
Company _____
City, State Zip Code _____

Cover Letter (Phase 3)

Dear _____:

I am Ph.D. Candidate at Virginia Tech. For my dissertation research, I am conducting a study of the perception of the industry's owner-population on the value-added benefit of the design professional's services during construction and contract administration. I am soliciting your valuable insights and contributions to this research project, as you are an industry professional with a variety of experiences and a number of years in the construction industry. This study seeks to investigate changes to key provisions in the AIA A201 and their impact on the perception of the value-added benefit of the services provided by the architect during the construction process.

You will assist this research effort very much by taking a few minutes to share your experiences and opinions. The enclosed questionnaire identifies key provisions of AIA A201 General Conditions of Contract, which earlier research has shown to have a significant change. I estimate that it will take about fifteen (15) minutes to complete the document. I would sincerely appreciate it if you would complete the questionnaire and return it to me, postmarked by **Friday, June 24, 2005**, in the envelope provided.

Your participation in this survey is voluntary. Your answers are completely confidential and will be released only as summaries in which no individual's answers can be identified. The questionnaire has an identification number for mailing purposes only. When you return your completed questionnaire, your name will be deleted from the mailing list and never connected to your answers in any way. If for any reason you prefer not to respond, please let me know by returning the blank questionnaire in the enclosed stamped envelope.

If you have any questions or comments about this study, I would be happy to talk with you. You may contact me at roxene@vt.edu / (202) 332-5445.

Sincerely,

Roxene M. Thompson
Ph.D. Candidate

APPENDIX D2 - SURVEY QUESTIONNAIRE

A RESEARCH STUDY: Owners' Perception of the Value-added Benefit of the Design Professional's Services During Construction and Contract Administration

This survey is intended to measure attitudes, beliefs, opinions, and expectations present in the owner-population in the construction industry concerning the impact that changes in key provisions of The American Institute of Architect's AIA A201, General Conditions of the Contract for Construction, have had on owners' perception of the value of the design professional's performance of contract administration services during construction.

Please complete each of the following questions. Based on your experience, choose what you consider to be the most appropriate answer.

Your contribution is greatly appreciated!

PART I: YOUR BACKGROUND

1) In connection with constructed projects, do you act or have acted primarily as an "Owner" or as an "Owner's Representative"?

Owner Owner's Representative

Neither *(Thank you for your time. Please return your survey in the envelope provided.)*

2) As an Owner or Owner's Representative, what percentage of your time is spent acting in the designated role?

0 – 10% 51 – 75%
 11 – 25% 76 – 90%
 26 – 50% 91 – 100%

3) To which of the following professional organizations do you belong? *(Check all that apply)*

- Construction Owners Association of America (COAA)
- Associated Owners & Developers (AOD)
- Construction Users Roundtable (CURT)
- Associated Builders and Contractors (ABC)
- The Associated General Contractors of America (AGC)
- The American Institute of Architects (AIA)
- Construction Management Association of America (CMAA)
- National Society of Professional Engineers (NSPE)
- Other: _____

4) How many years have you worked in the construction industry?

- Less than 10 years
- 11 – 15 years
- 16 – 20 years
- 21 – 25 years
- 26 – 30 years
- 31 – 35 years
- 36 years or more

5) Which of the following statements best reflects your level of familiarity with the AIA A201 "family" of contract documents?

- I am not familiar with them and do not use them.
- I am familiar with them, but do not use them.
- I am familiar with them, but use them only occasionally.
- I am familiar with them, and use them quite frequently.

PART II: DESIGN PROFESSIONAL DURING CONSTRUCTION

- 6) As an Owner or Owner's Representative, over the last 10 years, have you utilized construction oversight or construction management services of an Architect during the construction phase of your projects? *(If your response is "No", please go to Question No. 9)*

Yes No

- 7) How often – expressed as a percentage of the projects you have undertaken – do you utilize construction oversight or construction management services of an Architect during the construction phase of your projects?
(If your response is "0% (never)", please go to Question No. 9)

0% (never) 25% 50% 75% 100% (all of the time)

- 8) As an Owner or Owner's Representative, please rate the importance of the Architect's services during the construction phase of a project.

(Please use the following scale: 1 = not at all important; 5 = extremely important)

_____ Timely review and response to inquires concerning Contract Documents

_____ Interpret and decide matters concerning the performance of the Owner and Contractor

_____ Render decisions on claims, disputes, or other matters in question between the Owner and Contractor

_____ Visit the project site at intervals appropriate to the stage of work in effort to guard the Owner against defects and deficiencies in the contracted work

_____ Reject work that does not conform to the Contract Documents

_____ Conduct inspections to determine the dates of Substantial Completion and Final Completion, and issue a final Certificate of Payment

_____ Review, approve, or take appropriate action upon Contractor's submittals, i.e. shop drawings

_____ Authorize minor changes in the work, not involving adjustment in the contract time or contract sum

PART III: IMPACT OF CHANGE ON THE VALUE-ADDED OF THE DESIGN PROFESSIONAL

9) ROLE OF THE ARCHITECT (Article 4 of the AIA A201-1997)

[Comment: The role of the Architect during the construction phase of a project is set forth in Article 4 of the current edition of AIA A201. However, no single provision of AIA A201 defines, in total, the role that the Architect is to play during construction.]

- (a) From 1951 to 1997, there have been changes to various provisions of Article 4 of AIA A201 pertaining to the **Role of the Architect** during the construction phase of a project. Which of the following statements most accurately reflects your opinion regarding these changes?
(Check only one box)

- The changes to various provisions of Article 4 pertaining to the Role of the Architect provision have had no effect on the role of the Architect on a project during the construction phase.
- The changes to various provisions of Article 4 pertaining to the Role of the Architect provision have resulted in the Architect assuming more responsibility during the construction phase.
- The changes to various provisions of Article 4 pertaining to the Role of the Architect provision have resulted in the Architect assuming less responsibility during the construction phase.

- (b) To what extent do you agree with the following statement: "The changes to the AIA A201 provision concerning the **Role of the Architect** have increased the value of the Architect's performance of contract administration services during construction":

Strongly agree Agree Neutral Disagree Strongly disagree

- (c) As an Owner or Owner's Representative, with regard to the **Role of the Architect**, do you find that in recent years the value of the Architect's contract administration services during construction has:

Greatly increased Increased Not changed Decreased Greatly decreased

10) DISPUTE RESOLUTION (Paragraph 4.4 of the AIA A201-1997)

[Comment: For the purposes of this Question 10, please limit your response to your perception of the Architect's role as the initial arbitrator of disputes between the Owner and Contractor. This question is not intended to measure your opinion concerning the AIA's use of mediation and/or arbitration to address matters that remain unresolved between the Owner and Contractor after the Architect has fulfilled its responsibilities as the initial arbitrator of disputes between the Owner and Contractor.]

- (a) From 1951 to 1997, there have been changes in the provisions of AIA A201 pertaining to **Dispute Resolution** in contract administration during construction. Which of the following statements most accurately reflects your opinion regarding these changes?
(Check only one box)

- The changes to the Dispute Resolution provisions have had no effect on the role of the Architect on a project during the construction phase.
- The changes to the Dispute Resolution provisions have resulted in the Architect assuming more responsibility during the construction phase.
- The changes to the Dispute Resolution provisions have resulted in the Architect assuming less responsibility during the construction phase.

A RESEARCH STUDY: Owners' Perception of the Value-added Benefit of the Design Professional's Services During Construction and Contract Administration

(b) To what extent do you agree with the following statement: "The changes to the AIA A201 provision concerning the **Dispute Resolution** have increased the value of the Architect's performance of contract administration services during construction":

- Strongly agree Agree Neutral Disagree Strongly disagree

(c) As an Owner or Owner's representative, with regard to **Dispute Resolution**, do you find that in recent years the value of the Architect's contract administration services during construction has:

- Greatly increased Increased Not changed Decreased Greatly decreased

11) CLAIMS FOR EXTRA COST (Paragraph 4.3 of the AIA A201-1997)

(a) From 1951 to 1997, there have been changes in the provisions of AIA A201 pertaining to **Claims for Extra Cost** during the construction phase of a project. Which of the following statements most accurately reflects your opinion regarding these changes? (*Check only one box*)

- The changes to the Claims for Extra Cost provisions have had no effect on the role of the Architect on a project during the construction phase.
 The changes to the Claims for Extra Cost provisions have resulted in the Architect assuming more responsibility during the construction phase.
 The changes to the Claims for Extra Cost provisions have resulted in the Architect assuming less responsibility during the construction phase.

(b) To what extent do you agree with the following statement: "The changes to the AIA A201 provision concerning the **Claims for Extra Cost** have increased the value of the Architect's performance of contract administration services during construction":

- Strongly agree Agree Neutral Disagree Strongly disagree

(c) As an Owner or Owner's Representative, with regard to **Claims for Extra Cost**, do you find that in recent years the value of the Architect's contract administration services during construction has:

- Greatly increased Increased Not changed Decreased Greatly decreased

12) SHOP DRAWINGS (Subparagraph 4.2.7 of the AIA A207-1997)

(a) From 1951 to 1997, there have been changes in the provision of AIA A201 pertaining to **Shop Drawings** in contract administration during construction. Which of the following statements most accurately reflects your opinion regarding these changes? (*Check only one box*)

- The changes to the Shop Drawings provision have had no effect on the role of the Architect on a project during the construction phase.
 The changes to the Shop Drawings provision have resulted in the Architect assuming more responsibility during the construction phase.
 The changes to the Shop Drawings provision have resulted in the Architect assuming less responsibility during the construction phase.

(b) To what extent do you agree with the following statement: "The changes to the AIA A201 provision concerning **Shop Drawings** have increased the value of the Architect's performance of contract administration services during construction":

- Strongly agree Agree Neutral Disagree Strongly disagree

A RESEARCH STUDY: Owners' Perception of the Value-added Benefit of the Design Professional's Services During Construction and Contract Administration

(c) As an Owner or Owner's Representative, with regard to **Shop Drawings**, do you find that in recent years the value of the Architect's contract administration services during construction has:

- Greatly increased Increased Not changed Decreased Greatly decreased

13) CHANGES IN THE WORK (Article 7 of the AIA A201-1997)

(a) From 1951 to 1997, there have been changes in the provisions of AIA A201 pertaining to **Changes in the Work** in contract administration during construction. Which of the following statements most accurately reflects your opinion regarding these changes? (*Check only one box*)

- The changes to the Changes in the Work provisions have had no effect on the role of the Architect on a project during the construction phase.
 The changes to the Changes in the Work provisions have resulted in the Architect assuming more responsibility during the construction phase.
 The changes to the Changes in the Work provisions have resulted in the Architect assuming less responsibility during the construction phase.

(b) To what extent do you agree with the following statement: "The changes to the AIA A201 provision concerning the **Changes in the Work** have increased the value of the Architect's performance of contract administration services during construction":

- Strongly agree Agree Neutral Disagree Strongly disagree

(c) As an Owner or Owner's Representative, with regard to **Changes in the Work**, do you find that in recent years the value of the Architect's contract administration services during construction has:

- Greatly increased Increased Not changed Decreased Greatly decreased

Thank you for taking the time to complete this questionnaire. Your assistance in providing this information is very much appreciated! Thank you for your participation!

Please return your completed questionnaire in the envelope provided by Friday, June 24, 2005 to:

Roxene M. Thompson
Ph.D. Candidate
Virginia Tech
400 Massachusetts Ave. NW, Suite #416
Washington, DC 20001

APPENDIX D3 - SCALE OF RESPONSES

SURVEY QUESTIONS AND SCALE OF RESPONSES

PHASE 3

BACKGROUND

Q1 => In connection with constructed projects, do you act or have acted primarily as an "Owner" or as an "Owner's Representative"?

O = Owner

R = Owner's Representative

Q2 => As an Owner or Owner's Representative, what percentage of your time is spent acting in the designated role?

1 = 0-10%

2 = 11-25%

3 = 26-50%

4 = 51-75%

5 = 76-90%

6 = 91-100%

To which of the following professional organizations do you belong?

1 = Yes

0 = No

Q3 => COAA = ?

Q4 AOD = ?

Q5 CURT = ?

Q6 ABC = ?

Q7 AGC = ?

Q8 AIA = ?

Q9 CMAA = ?

Q10 NSPE = ?

Q11 OTHER ?

Q12 => How many years have you worked in the construction industry?

1 = < 10

2 = 11 - 15

3 = 16 - 20

4 = 21 - 25

5 = 26 - 30

6 = 31 - 35

7 = 36 >

SURVEY QUESTIONS AND SCALE OF RESPONSES

PHASE 3

Q13 => Which of the following statements best reflects your level of familiarity with the AIA A201 "family" of contract documents?

- 1 = I am not familiar with them and do not use them.
- 2 = I am familiar with them, but do not use them.
- 3 = I am familiar with them, but use them only occasionally.
- 4 = I am familiar with them, and use them quite frequently.

Design Professional during Construction

Q14 => As an Owner or Owner's Representative, over the last 10 years, have you utilized construction oversight or construction management services of an Architect during the construction phase of your projects?

- 1 = Yes
- 0 = No

Q15 => How often - expressed as a percentage of the projects you have undertaken - do you utilize construction oversight or construction management services of an Architect during the construction phase of your projects?

- 0 = 0%
- 1 = 25%
- 2 = 50%
- 3 = 75%
- 4 = 100%

As an Owner or Owner's Representative, please rate the importance of the Architect's services during the construction phase of a project.

from 1 = Not at all important

to 5 = Extremely important

99 = No response

- Q16 =>** Timely review and response to inquiries concerning Contract Documents
- Q17 =>** Interpret and decide matters concerning the performance of the Owner and Contractor
- Q18 =>** Render decisions on claims, disputes, or other matters in question between the Owner and Contractor
- Q19 =>** Visit the project site at intervals appropriate to the stage of work in effort to guard the Owner against defects and deficiencies in the contracted work
- Q20 =>** Reject work that does not conform to the Contract Documents
- Q21 =>** Conduct inspections to determine the dates of Substantial Completion and Final Completion, and issue a final Certificate of Payment
- Q22 =>** Review, approve, or take appropriate action upon Contractor's submittals, i.e., shop drawings
- Q23 =>** Authorize minor changes in the work, not involving adjustment in the contract time or contract sum

ROLE OF THE ARCHITECT

- Q24 =>** From 1951 to 1997, there have been changes to various provisions pertaining to the **ROLE OF THE ARCHITECT** during the construction phase of a project. Which of the following statements most accurately reflects your opinion regarding these changes
- 1 = The changes to various provisions have had no effect on the role of the Architect on a project during construction.
 - 2 = The changes to various provisions have resulted in the Architect assuming more responsibility during construction.
 - 3 = The changes to various provisions have resulted in the Architect assuming less responsibility during construction.
- Q25 =>** To what extent do you agree with the following statement: "The changes to the AIA A201 provision concerning the **ROLE OF THE ARCHITECT** have increased the value of the Architect's performance of contract administration services during construction."
- 1 = Strongly Agree
 - 2 = Agree
 - 3 = Neutral
 - 4 = Disagree
 - 5 = Strongly Disagree
- Q26 =>** As an Owner or Owner's Representative, with regard to the **ROLE OF THE ARCHITECT**, do you find that in recent years that the value of the Architect's contract administration services during construction has:
- 1 = Greatly increased
 - 2 = Increased
 - 3 = Not changed
 - 4 = Decreased
 - 5 = Greatly decreased

DISPUTE RESOLUTION

Q27 => From 1951 to 1997, there have been changes to various provisions pertaining to the **DISPUTE RESOLUTION** during the construction phase of a project. Which of the following statements most accurately reflects your opinion regarding these changes

- 1 = The changes to various provisions have had no effect on the role of the Architect on a project during construction.
- 2 = The changes to various provisions have resulted in the Architect assuming more responsibility during construction.
- 3 = The changes to various provisions have resulted in the Architect assuming less responsibility during construction.

Q28 => To what extent do you agree with the following statement: "The changes to the AIA A201 provision concerning the **DISPUTE RESOLUTION** have increased the value of the Architect's performance of contract administration services during construction."

- 1 = Strongly Agree
- 2 = Agree
- 3 = Neutral
- 4 = Disagree
- 5 = Strongly Disagree

Q29 => As an Owner or Owner's Representative, with regard to the **DISPUTE RESOLUTION**, do you find that in recent years the value of the Architect's contract administration services during construction has:

- 1 = Greatly increased
- 2 = Increased
- 3 = Not changed
- 4 = Decreased
- 5 = Greatly decreased

CLAIMS FOR EXTRA COST

Q30 => From 1951 to 1997, there have been changes to various provisions pertaining to the **CLAIMS FOR EXTRA COST** during the construction phase of a project. Which of the following statements most accurately reflects your opinion regarding these changes

- 1 = The changes to various provisions have had no effect on the role of the Architect on a project during construction.
- 2 = The changes to various provisions have resulted in the Architect assuming more responsibility during construction.
- 3 = The changes to various provisions have resulted in the Architect assuming less responsibility during construction.

Q31 => To what extent do you agree with the following statement: "The changes to the AIA A201 provision concerning the **CLAIMS FOR EXTRA COST** have increased the value of the Architect's performance of contract administration services during construction."

- 1 = Strongly Agree
- 2 = Agree
- 3 = Neutral
- 4 = Disagree
- 5 = Strongly Disagree

Q32 => As an Owner or Owner's Representative, with regard to the **CLAIMS FOR EXTRA COST**, do you find that in recent years the value of the Architect's contract administration services during construction has:

- 1 = Greatly increased
- 2 = Increased
- 3 = Not changed
- 4 = Decreased
- 5 = Greatly decreased

SHOP DRAWINGS

- Q33 =>** From 1951 to 1997, there have been changes to various provisions pertaining to the **SHOP DRAWINGS** during the construction phase of a project. Which of the following statements most accurately reflects your opinion regarding these changes
- 1 = The changes to various provisions have had no effect on the role of the Architect on a project during construction.
 - 2 = The changes to various provisions have resulted in the Architect assuming more responsibility during construction.
 - 3 = The changes to various provisions have resulted in the Architect assuming less responsibility during construction.
- Q34 =>** To what extent do you agree with the following statement: "The changes to the AIA A201 provision concerning the **SHOP DRAWINGS** have increased the value of the Architect's performance of contract administration services during construction."
- 1 = Strongly Agree
 - 2 = Agree
 - 3 = Neutral
 - 4 = Disagree
 - 5 = Strongly Disagree
- Q35 =>** As an Owner or Owner's Representative, with regard to the **SHOP DRAWINGS**, do you find that in recent years the value of the Architect's contract administration services during construction has:
- 1 = Greatly increased
 - 2 = Increased
 - 3 = Not changed
 - 4 = Decreased
 - 5 = Greatly decreased

CHANGES IN THE WORK

- Q36 =>** From 1951 to 1997, there have been changes to various provisions pertaining to the **CHANGES IN THE WORK** during the construction phase of a project. Which of the following statements most accurately reflects your opinion regarding these changes
- 1 = The changes to various provisions have had no effect on the role of the Architect on a project during construction.
 - 2 = The changes to various provisions have resulted in the Architect assuming more responsibility during construction.
 - 3 = The changes to various provisions have resulted in the Architect assuming less responsibility during construction.
- Q37 =>** To what extent do you agree with the following statement: "The changes to the AIA A201 provision concerning the **CHANGES IN THE WORK** have increased the value of the Architect's performance of contract administration services during construction."
- 1 = Strongly Agree
 - 2 = Agree
 - 3 = Neutral
 - 4 = Disagree
 - 5 = Strongly Disagree
- Q38 =>** As an Owner or Owner's Representative, with regard to the **CHANGES IN THE WORK**, do you find that in recent years the value of the Architect's contract administration services during construction has:
- 1 = Greatly increased
 - 2 = Increased
 - 3 = Not changed
 - 4 = Decreased
 - 5 = Greatly decreased

APPENDIX D4 - TALLY OF RESPONSES

TALLY OF PARTICIPANTS' RESPONSES

PHASE 3

		<i>PART I</i>													
Participant	Respondent	BACKGROUND													
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14
		Owner's Rep	% of Towneers	COAA	AOD	CURT	ABC	AGC	AlA	CMAA	NSPE	OTHER	Industry	Familiarity	with AIA 2011
1	3	R	6	1	0	0	0	0	0	0	0	0	4	3	1
2	4	O	6	1	0	0	0	0	0	0	0	0	1	4	1
3	5	O	6	1	0	0	0	0	0	0	0	1	5	2	1
4	6	R	6	1	0	0	0	0	0	0	0	0	7	2	1
5	7	O	2	1	0	0	0	0	0	0	0	1	4	2	1
6	9	O	6	1	0	0	0	0	1	0	0	1	4	2	1
7	11	O	6	1	0	0	0	0	0	1	0	0	7	4	1
8	13	O	6	1	0	0	0	0	0	0	0	1	6	3	1
9	14	O	3	1	0	0	0	0	0	0	0	1	2	2	1
10	15	R	6	1	0	0	0	0	0	0	0	0	4	3	1
11	16	O	3	1	0	0	0	0	0	0	0	1	3	3	1
12	25	R	1	1	0	0	0	1	0	0	0	0	6	4	0
13	35	O	6	1	0	0	0	0	1	0	0	0	5	3	1
14	37	R	6	1	0	0	0	0	0	1	0	0	5	4	0
15	51	R	5	1	0	0	0	0	1	0	0	0	5	4	1
16	53	R	4	1	1	0	0	0	0	0	0	1	2	4	1
17	54	R	2	1	0	0	1	1	0	0	0	0	5	3	1
18	61	R	6	1	0	0	0	0	0	0	0	1	2	4	1

TALLY OF PARTICIPANTS' RESPONSES

PHASE 3

<i>PART II</i>										
DESIGN PROFESSIONAL DURING CONSTRUCTION										
Participant	Respondent	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23
		Frequency of Architect Use of	Timely response	Interpretation and	decisions on	Responsibility	Project work	Communication	submitals	minor changes
1	3	4	5	4	3	5	5	3	4	3
2	4	3	1	2	2	4	4	2	5	2
3	5	3	5	3	3	5	5	3	5	4
4	6	4	5	3	4	5	5	5	5	4
5	7	4	5	1	4	5	5	3	5	1
6	9	4	5	5	5	4	4	5	5	1
7	11	2	5	1	1	4	2	1	5	2
8	13	4	5	3	3	5	3	3	5	5
9	14	2	5	3	1	3	3	3	5	3
10	15	3	5	1	1	5	5	5	5	3
11	16	2	5	3	3	3	4	2	5	2
12	25	0	99	99	99	99	99	99	99	99
13	35	4	5	3	2	5	3	4	5	2
14	37	0	99	99	99	99	99	99	99	99
15	51	3	5	2	3	4	2	3	5	1
16	53	3	5	5	2	5	5	4	4	1
17	54	4	5	1	1	3	4	4	5	5
18	61	4	5	3	4	5	5	3	5	2

TALLY OF PARTICIPANTS' RESPONSES

PHASE 3

Participant	Respondent	ROLE OF THE ARCHITECT			DISPUTE RESOLUTION			<i>PART III</i> CLAIMS FOR EXTRA COST			SHOP DRAWINGS			CHANGES IN THE WORK		
		Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33	Q34	Q35	Q36	Q37	Q38
		Effect of Change of Architect's Value of Increase	Architect's Change of Value of Increase	Architect's Change of Value of Increase	Effect of Change of Architect's Value of Increase	Architect's Change of Value of Increase	Architect's Change of Value of Increase	Effect of Change of Architect's Value of Increase	Architect's Change of Value of Increase	Architect's Change of Value of Increase	Effect of Change of Architect's Value of Increase	Architect's Change of Value of Increase	Architect's Change of Value of Increase	Effect of Change of Architect's Value of Increase	Architect's Change of Value of Increase	Architect's Change of Value of Increase
1	3	3	5	4	3	4		1	3	3	3	4	4	3	4	4
2	4	3	5	4	1	3	4	1	3	3	1	4	3	3	4	3
3	5	3	5	4	3	4	3	3	5	5	3	5	4	3	5	3
4	6	3	4	3	3	4	3	1	4	3	1	4	3	3	4	3
5	7	3	5	4	3	4	3	3	5	5	3	5	4	3	5	3
6	9	3	5	5	3	3	4	1	3	3	3	4	4	1	3	3
7	11	3	5	5	3	5	5	3	5	5	3	5	3	3	5	3
8	13	3	5	5	3	4	4	1	3	3	1	3	3	3	4	4
9	14	1	4	4	1	5	4	1	5	4	1	3	3	1	3	3
10	15	3	5	5	3	5	5	3	5	5	3	5	5	3	5	5
11	16	1	3	3	3	4	4	2	2	2	1	3	3	2	2	2
12	25	3	4	4	1	4	3	1	4	4	3	4	4	1	4	4
13	35	3	5	4	3	4	4	3	4	4	3	4	4	3	4	4
14	37	3	5	4	3	4	4	3	4	4	3	4	4	3	4	4
15	51	3	3	2	2	3	2	1	3	2	3	3	3	3	3	3
16	53	3	4	4	3	4	4	3	4	4	3	4	4	3	4	4
17	54	3	4	4	3	4	4	1	4	3	3	4	4	1	4	3
18	61	1	4	3	1	3	3	1	3	3	1	3	3	1	3	3

TALLY OF PARTICIPANTS' RESPONSES

PHASE 3

		<i>PART I</i>													
Participant	Respondent	BACKGROUND													
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14
		Owner's Rep	% of Town members	COAA	AOD	CURT	ABC	AGC	ALA	CMAA	NSPE	OTHER	Industry	Familial/Associates	with AlA 201
19	72	O	6	1	0	0	0	0	0	0	1	0	6	2	1
20	73	R	6	1	0	0	0	0	0	0	0	0	3	4	1
21	75	O	3	1	0	0	0	0	1	0	0	0	4	2	1
22	76	R	3	1	1	0	0	0	0	0	0	0	1	4	1
23	77	R	5	1	0	0	0	0	0	0	0	0	2	2	1
24	78	R	6	1	0	0	0	0	1	1	0	0	5	4	1
25	80	O	6	1	0	0	0	0	0	1	0	1	6	4	1
26	81	R	2	1	0	0	0	1	0	0	0	0	6	4	0
27	82	R	6	1	0	0	0	0	0	0	0	1	5	3	1
28	84	R	6	1	0	0	0	0	0	0	0	1	4	4	1
29	91	R	6	1	0	0	0	0	0	0	0	0	4	4	1
30	94	O	6	1	1	0	0	0	1	0	0	1	4	4	1
31	101	O	6	1	0	0	0	0	0	0	0	1	4	2	1
32	106	R	4	0	1	1	0	1	0	0	0	0	7	4	1
33	124	R	3	1	0	0	0	0	0	1	0	0	6	2	0
34	125	O	6	1	0	0	0	0	1	1	0	0	5	1	1
35	129	R	2	1	0	0	0	0	0	1	0	0	5	3	1
36	131	R	3	1	0	0	0	0	0	1	0	0	6	4	1

TALLY OF PARTICIPANTS' RESPONSES

PHASE 3

<i>PART II</i>										
DESIGN PROFESSIONAL DURING CONSTRUCTION										
Participant	Respondent	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23
		Frequency of Architect Use of	Timely response	Interpretation and	decision	Visprojections	Reject work	incompetitions	submittals	minor changes
19	72	4	5	1	1	4	1	3	5	1
20	73	4	5	2	3	4	4	3	4	3
21	75	1	5	1	3	5	5	4	5	3
22	76	2	3	1	5	4	4	4	3	2
23	77	4	4	3	4	4	4	3	5	1
24	78	1	5	3	2	1	4	4	5	5
25	80	3	2	5	4	5	5	4	4	4
26	81	0	99	99	99	99	99	99	99	99
27	82	4	5	2	3	5	5	5	5	2
28	84	4	5	1	1	5	4	4	5	3
29	91	4	5	5	1	5	5	5	5	1
30	94	4	5	2	5	5	4	4	5	2
31	101	4	5	1	3	4	5	4	5	2
32	106	4	5	3	2	5	5	5	5	4
33	124	0	99	99	99	99	99	99	99	99
34	125	1	4	3	1	3	2	3	4	1
35	129	1	5	3	2	2	2	1	5	1
36	131	1	4	4	2	3	4	4	4	3

TALLY OF PARTICIPANTS' RESPONSES

PHASE 3

Participant	Respondent	ROLE OF THE ARCHITECT			DISPUTE RESOLUTION			<i>PART III</i> CLAIMS FOR EXTRA COST			SHOP DRAWINGS			CHANGES IN THE WORK		
		Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33	Q34	Q35	Q36	Q37	Q38
		Effect of Change of Architect's Value of Increase	Architect's Change of Value of Increase	Architect's Value of Increase	Effect of Change of Architect's Value of Increase	Architect's Change of Value of Increase	Architect's Value of Increase	Effect of Change of Architect's Value of Increase	Architect's Change of Value of Increase	Architect's Value of Increase	Effect of Change of Architect's Value of Increase	Architect's Change of Value of Increase	Architect's Value of Increase	Effect of Change of Architect's Value of Increase	Architect's Change of Value of Increase	Architect's Value of Increase
19	72	3	4	3	3	4	3	3	4	3	3	4	3	3	4	3
20	73	3	4	4	3	4	4	3	4	4	3	4	4	1	3	3
21	75	1	5	5	3	5	5	3	5	5	3	5	5	3	5	5
22	76	3	4	4	1	3	3	1	3	3	1	3	3	1	3	3
23	77	1	3	3	1	3	3	2	3	3	1	3	2	1	3	3
24	78	3	5	5	3	5	5	3	5	5	3	3	4	3	5	5
25	80	3	4	4	1	3	4	1	3	4	3	4	4	3	4	4
26	81	3	4	4	3	4	4	3	4	4	3	4	4	3	4	4
27	82	2	2	3	3	3	4	2	2	2	2	2	2	2	2	2
28	84	1	3	3	1	3	3	1	4	3	1	3	3	1	3	3
29	91	3	5	5	3	5	5	3	5	5	3	5	5	3	5	5
30	94	3	4	3	2	2	2	1	3	3	3	4	4	1	3	3
31	101	3	3	5	3	4	3	3	4	4	3	4	5	1	5	4
32	106	3	4	4	3	4	4	3	4	4	3	4	4	3	4	4
33	124	3	5	5	3	5	5	3	5	5	3	5	5	3	5	5
34	125	1	3	3	1	3	3	1	3	3	1	3	3	1	3	3
35	129	3	4	4	3	4	4	3	4	4	3	4	4	3	4	4
36	131	3	4	4	3	3	3	3	3	3	3	5	5	3	4	4

TALLY OF PARTICIPANTS' RESPONSES

PHASE 3

		<i>PART I</i>													
Participant	Respondent	BACKGROUND													
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14
		Owner's Rep	% of TOWNER as	COAA	AOD	CURT	ABC	AGC	ALA	CMAA	NSPE	OTHER	Industry	Fam/with AIA/USA 2011	Utilization for Services
37	138	R	5	0	0	0	0	0	1	1	0	0	4	3	1
38	141	R	6	0	0	0	0	0	0	1	0	0	2	2	0
39	143	R	3	0	0	0	0	0	0	1	0	1	6	1	1
40	144	R	5	0	0	0	0	0	0	1	0	0	4	2	0
41	157	O	6	0	0	1	0	0	0	0	0	1	2	1	1
42	170	R	6	0	0	1	1	0	0	0	0	0	2	1	0
43	184	O	5	0	0	1	0	0	0	0	1	0	7	3	3
44	185	O	5	0	0	1	0	0	0	0	0	0	7	2	0
45	186	O	2	0	0	0	0	0	0	0	0	1	6	2	0
46	196	R	1	0	0	0	0	0	1	0	0	0	3	3	1
47	199	O	5	0	0	0	0	0	0	0	0	1	2	1	0
48	200	R	6	0	0	1	0	0	0	0	0	0	5	3	0

TALLY OF PARTICIPANTS' RESPONSES

PHASE 3

<i>PART II</i>										
DESIGN PROFESSIONAL DURING CONSTRUCTION										
Participant	Respondent	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23
		Frequency of Architect Use	Timely responses	Interpretation and details	Decision on requirements	Value of the project	Reject work	Communication	Submittals	Minor changes
37	138	1	4	2	3	4	4	4	4	2
38	141	0	99	99	99	99	99	99	99	99
39	143	2	4	2	2	3	3	3	5	4
40	144	0	99	99	99	99	99	99	99	99
41	157	2	4	3	3	3	4	2	2	3
42	170	0	99	99	99	99	99	99	99	99
43	184	1	1	1	1	2	2	2	5	3
44	185	0	99	99	99	99	99	99	99	99
45	186	0	99	99	99	99	99	99	99	99
46	196	3	4	4	2	2	2	3	4	4
47	199	0	99	99	99	99	99	99	99	99
48	200	0	99	99	99	99	99	99	99	99

TALLY OF PARTICIPANTS' RESPONSES

PHASE 3

Participant	Respondent	ROLE OF THE ARCHITECT			DISPUTE RESOLUTION			<i>PART III</i> CLAIMS FOR EXTRA COST			SHOP DRAWINGS		CHANGES IN THE WORK			
		Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33	Q34	Q35	Q36	Q37	Q38
		Effect of Change of Increase of Architect's Valued Change	Architect's Valued Change of Increase of Architect's Valued Change	Architect's Valued Change of Increase of Architect's Valued Change	Effect of Change of Increase of Architect's Valued Change	Architect's Valued Change of Increase of Architect's Valued Change	Architect's Valued Change of Increase of Architect's Valued Change	Effect of Change of Increase of Architect's Valued Change	Architect's Valued Change of Increase of Architect's Valued Change	Architect's Valued Change of Increase of Architect's Valued Change	Effect of Change of Increase of Architect's Valued Change	Architect's Valued Change of Increase of Architect's Valued Change	Architect's Valued Change of Increase of Architect's Valued Change	Effect of Change of Increase of Architect's Valued Change	Architect's Valued Change of Increase of Architect's Valued Change	Architect's Valued Change of Increase of Architect's Valued Change
37	138	3	3	3	1	3	3	3	3	3	1	3	3	1	3	3
38	141	3	4	4	3	5	5	3	5	5	3	5	5	3	5	5
39	143	3	4	4	3	4	4	3	4	4	3	4	4	1	3	3
40	144	2	3	4	1	3	4	1	3	3	3	4	4	1	3	3
41	157	3	4	4	3	4	4	3	4	4	3	4	4	1	3	3
42	170	3	4	4	3	4	4	3	4	4	3	4	4	1	3	3
43	184	1	3	3	1	3	3	1	3	3	2	2	2	1	3	3
44	185	2	3	3	1	3	3	1	3	3	1	3	3	1	3	3
45	186	1	3	2	3	3	3	3	4	4	1	2	3	2	2	2
46	196	3	4	4	1	3	4	3	4	4	1	3	2	3	4	2
47	199	3	4	4	3	5	5	3	5	5	3	5	5	3	5	5
48	200	3	4	4	3	4	4	3	4	4	3	4	4	3	4	4

APPENDIX D5 – RESULTS OF STATISTICAL ANALYSIS

Descriptives of the survey questions of Phase III

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
q2	48	1.00	6.00	4.7083	1.64974
q3	48	.00	1.00	.7292	.44909
q4	48	.00	1.00	.0833	.27931
q5	48	.00	1.00	.1250	.33422
q6	48	.00	1.00	.0417	.20194
q7	48	.00	1.00	.0833	.27931
q8	48	.00	1.00	.1875	.39444
q9	48	.00	1.00	.2500	.43759
q10	48	.00	1.00	.0417	.20194
q11	48	.00	1.00	.3542	.48332
q12	48	1.00	7.00	4.3750	1.70886
q13	48	1.00	4.00	2.8542	1.03121
q14	48	.00	3.00	.8125	.53221
q15	48	.00	4.00	2.2500	1.61772
q16	37	1.00	5.00	4.4595	1.06965
q17	37	1.00	5.00	2.5676	1.28107
q18	37	1.00	5.00	2.5676	1.23694
q19	37	1.00	5.00	4.0000	1.10554
q20	37	1.00	5.00	3.8378	1.16699
q21	37	1.00	5.00	3.4324	1.06824
q22	37	2.00	5.00	4.6486	.67562
q23	37	1.00	5.00	2.5676	1.25920
q24	48	1.00	3.00	2.5625	.79643
q25	48	2.00	5.00	4.0208	.78522
q26	48	2.00	5.00	3.8542	.77156
q27	48	1.00	3.00	2.3750	.91384
q28	48	2.00	5.00	3.7917	.77070
q29	47	2.00	5.00	3.7447	.79312
q30	48	1.00	3.00	2.1875	.95997
q31	48	2.00	5.00	3.8125	.84189
q32	48	2.00	5.00	3.7083	.87418
q33	48	1.00	3.00	2.3750	.91384
q34	48	2.00	5.00	3.8125	.84189
q35	48	2.00	5.00	3.6875	.85443
q36	48	1.00	3.00	2.1458	.96733
q37	48	2.00	5.00	3.7500	.88726
q38	48	2.00	5.00	3.4792	.85027
Valid N (listwise)	36				

Frequency Table Results

Q1: In connection with constructed projects, do you act or have acted primarily as an “Owner” or as an “Owner’s Representative”?

q1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	O	20	41.7	41.7	41.7
	R	28	58.3	58.3	100.0
	Total	48	100.0	100.0	

Primary role as an ...
 O = Owner
 R = Owner’s Representative

Q2: As an Owner or Owner’s Representative, what percentage of your time is spent acting in the designated role?

q2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	2	4.2	4.2	4.2
	2.00	5	10.4	10.4	14.6
	3.00	7	14.6	14.6	29.2
	4.00	2	4.2	4.2	33.3
	5.00	7	14.6	14.6	47.9
	6.00	25	52.1	52.1	100.0
	Total	48	100.0	100.0	

% of time as an Owner or Owner’s representative...
 1 = 0 – 10%
 2 = 11 – 25%
 3 = 26 – 50%
 4 = 51 – 75%
 5 = 76 – 90%
 6 = 91 – 100%

Q3: Do you belong to the professional organization, COAA?

q3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	13	27.1	27.1	27.1
	1.00	35	72.9	72.9	100.0
	Total	48	100.0	100.0	

Member of the organization ...
 1 = Yes
 0 = No

Q4: Do you belong to the professional organization, AOD?

q4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	44	91.7	91.7	91.7
	1.00	4	8.3	8.3	100.0
	Total	48	100.0	100.0	

Member of the organization ...
 1 = Yes
 0 = No

Q5: Do you belong to the professional organization, CURT?

q5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	42	87.5	87.5	87.5
	1.00	6	12.5	12.5	100.0
	Total	48	100.0	100.0	

Member of the organization ...
1 = Yes
0 = No

Q6: Do you belong to the professional organization, ABC?

q6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	46	95.8	95.8	95.8
	1.00	2	4.2	4.2	100.0
	Total	48	100.0	100.0	

Member of the organization ...
1 = Yes
0 = No

Q7: Do you belong to the professional organization, AGC?

q7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	44	91.7	91.7	91.7
	1.00	4	8.3	8.3	100.0
	Total	48	100.0	100.0	

Member of the organization ...
1 = Yes
0 = No

Q8: Do you belong to the professional organization, AIA?

q8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	39	81.3	81.3	81.3
	1.00	9	18.8	18.8	100.0
	Total	48	100.0	100.0	

Member of the organization ...
1 = Yes
0 = No

Q9: Do you belong to the professional organization, CMAA?

q9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	36	75.0	75.0	75.0
	1.00	12	25.0	25.0	100.0
Total		48	100.0	100.0	

Member of the organization ...

1 = Yes

0 = No

Q10: Do you belong to the professional organization, NSPE?

q10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	46	95.8	95.8	95.8
	1.00	2	4.2	4.2	100.0
Total		48	100.0	100.0	

Member of the organization ...

1 = Yes

0 = No

Q11: Do you belong to the professional organization, OTHER?

q11

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	31	64.6	64.6	64.6
	1.00	17	35.4	35.4	100.0
Total		48	100.0	100.0	

Member of the organization ...

1 = Yes

0 = No

Q12: How many years have you worked in the construction industry?

q12

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	2	4.2	4.2	4.2
	2.00	8	16.7	16.7	20.8
	3.00	3	6.3	6.3	27.1
	4.00	11	22.9	22.9	50.0
	5.00	10	20.8	20.8	70.8
	6.00	9	18.8	18.8	89.6
	7.00	5	10.4	10.4	100.0
Total		48	100.0	100.0	

Number of years in the construction industry...

1 = < 10 years

2 = 11 - 15 years

3 = 16 - 20 years

4 = 21 - 25 years

5 = 26 - 30 years

6 = 31 - 35 years

7 = 36 > years

Q13: Which of the following statements best reflects your level of familiarity with the AIA A201 “family” of contract documents?

q13

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	5	10.4	10.4	10.4
	2.00	14	29.2	29.2	39.6
	3.00	12	25.0	25.0	64.6
	4.00	17	35.4	35.4	100.0
	Total	48	100.0	100.0	

Familiarity with AIA A201...

1 = Not familiar with them and do not use them
 2 = Familiar with them, but do not use them
 3 = Familiar with them, but use them occasionally
 4 = Familiar with them, and use them quite frequently

Q14: As an Owner or Owner’s Representative, over the last 10 years, have you utilized construction oversight or construction management services of an Architect during the construction phase of your projects?

q14

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	11	22.9	22.9	22.9
	1.00	36	75.0	75.0	97.9
	3.00	1	2.1	2.1	100.0
	Total	48	100.0	100.0	

Utilization of architect’s services...

1 = Yes
 0 = No
 3 = Non responsive

Q15: How often – expressed as a percentage of the projects you have undertaken – do you utilize construction oversight or construction management services of an Architect during the construction phase of your projects?

q15

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	11	22.9	22.9	22.9
	1.00	7	14.6	14.6	37.5
	2.00	6	12.5	12.5	50.0
	3.00	7	14.6	14.6	64.6
	4.00	17	35.4	35.4	100.0
	Total	48	100.0	100.0	

% of projects utilizing architect’s services...

0 = 0%
 1 = 25%
 2 = 50%
 3 = 75%
 4 = 100%

Q16: As an Owner or Owner's Representative, please rate the importance of the Architect's services of timely review and response to inquiries concerning Contract Documents during the construction phase of a project.

q16

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	2	4.2	5.4	5.4
	2.00	1	2.1	2.7	8.1
	3.00	1	2.1	2.7	10.8
	4.00	7	14.6	18.9	29.7
	5.00	26	54.2	70.3	100.0
	Total	37	77.1	100.0	
Missing	99.00	11	22.9		
Total		48	100.0		

Rate of importance...

From

1 = Not at all important

To

5 = Extremely important

99 = Non responsive

Q17: As an Owner or Owner's Representative, please rate the importance of the Architect's services to interpret and decide matters concerning the performance of the Owner and Contractor during the construction phase of a project.

q17

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	10	20.8	27.0	27.0
	2.00	7	14.6	18.9	45.9
	3.00	13	27.1	35.1	81.1
	4.00	3	6.3	8.1	89.2
	5.00	4	8.3	10.8	100.0
	Total	37	77.1	100.0	
Missing	99.00	11	22.9		
Total		48	100.0		

Rate of importance...

From

1 = Not at all important

To

5 = Extremely important

99 = Non responsive

Q18: As an Owner or Owner's Representative, please rate the importance of the Architect's services to render decisions on claims, disputes, or other matters in question between the Owner and Contractor during the construction phase of a project.

Rate of importance...

From

1 = Not at all important

To

5 = Extremely important

99 = Non responsive

q18

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	9	18.8	24.3	24.3
	2.00	9	18.8	24.3	48.6
	3.00	11	22.9	29.7	78.4
	4.00	5	10.4	13.5	91.9
	5.00	3	6.3	8.1	100.0
	Total	37	77.1	100.0	
Missing	99.00	11	22.9		
Total		48	100.0		

Q19: As an Owner or Owner's Representative, please rate the importance of the Architect's services to visit the project site at intervals appropriate to the state of work in effort to guard the Owner against defects and deficiencies in the contracted work during the construction phase of a project.

q19

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	2.1	2.7	2.7
	2.00	3	6.3	8.1	10.8
	3.00	7	14.6	18.9	29.7
	4.00	10	20.8	27.0	56.8
	5.00	16	33.3	43.2	100.0
	Total	37	77.1	100.0	
Missing	99.00	11	22.9		
Total		48	100.0		

Rate of importance...

From

1 = Not at all important

To

5 = Extremely important

99 = Non responsive

Q20: As an Owner or Owner's Representative, please rate the importance of the Architect's services to reject work that does not conform to the Contracts Documents during the construction phase of a project.

q20

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	2.1	2.7	2.7
	2.00	6	12.5	16.2	18.9
	3.00	4	8.3	10.8	29.7
	4.00	13	27.1	35.1	64.9
	5.00	13	27.1	35.1	100.0
	Total	37	77.1	100.0	
Missing	99.00	11	22.9		
Total		48	100.0		

Rate of importance...

From

1 = Not at all important

To

5 = Extremely important

99 = Non responsive

Q21: As an Owner or Owner's Representative, please rate the importance of the Architect's services to reject work that does not conform to the Contracts Documents during the construction phase of a project.

q21

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	2	4.2	5.4	5.4
	2.00	4	8.3	10.8	16.2
	3.00	13	27.1	35.1	51.4
	4.00	12	25.0	32.4	83.8
	5.00	6	12.5	16.2	100.0
	Total	37	77.1	100.0	
Missing	99.00	11	22.9		
Total		48	100.0		

Rate of importance...

From

1 = Not at all important

To

5 = Extremely important

99 = Non responsive

Q22: As an Owner or Owner's Representative, please rate the importance of the Architect's services to review, approve, or take appropriate action upon Contractor's submittals, i.e., shop drawings, during the construction phase of a project.

q22

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	1	2.1	2.7	2.7
	3.00	1	2.1	2.7	5.4
	4.00	8	16.7	21.6	27.0
	5.00	27	56.3	73.0	100.0
	Total	37	77.1	100.0	
Missing	99.00	11	22.9		
Total		48	100.0		

Rate of importance...

From

1 = Not at all important

To

5 = Extremely important

99 = Non responsive

Q23: As an Owner or Owner's Representative, please rate the importance of the Architect's services to authorize minor changes in the work, not involving adjustment in the contract time or contract sum during the construction phase of a project.

q23

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	9	18.8	24.3	24.3
	2.00	10	20.8	27.0	51.4
	3.00	9	18.8	24.3	75.7
	4.00	6	12.5	16.2	91.9
	5.00	3	6.3	8.1	100.0
	Total	37	77.1	100.0	
Missing	99.00	11	22.9		
Total		48	100.0		

Rate of importance...

From

1 = Not at all important

To

5 = Extremely important

99 = Non responsive

Q24: The following statements most accurately reflects your opinion regarding changes from 1951 to 1997 to various provisions of AIA A201 pertaining to the Role of the Architect during the construction phase of a project.

q24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	9	18.8	18.8	18.8
	2.00	3	6.3	6.3	25.0
	3.00	36	75.0	75.0	100.0
	Total	48	100.0	100.0	

Opinion regarding changes...

1 = The changes to various provisions pertaining to the Role of the Architect provision have had no effect on the role of the Architect on a project during construction.

2 = The changes to various provisions pertaining to the Role of the Architect provision have resulted in the role of the Architect assuming more responsibility on a project during construction

3 = The changes to various provisions pertaining to the Role of the Architect provision have resulted in the role of the Architect assuming less responsibility on a project during construction

Q25: “The changes to the AIA A201 provision concerning the Role of the Architect have increased the value of the Architect’s performance of contract administration services during construction.”

q25

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 2.00	1	2.1	2.1	2.1
3.00	11	22.9	22.9	25.0
4.00	22	45.8	45.8	70.8
5.00	14	29.2	29.2	100.0
Total	48	100.0	100.0	

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

Q26: As an Owner or Owner’s Representative, with regard to the Role of the Architect, to what extent, in recent years, has the value of the Architect’s contract administration services during construction have changed?

q26

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 2.00	2	4.2	4.2	4.2
3.00	12	25.0	25.0	29.2
4.00	25	52.1	52.1	81.3
5.00	9	18.8	18.8	100.0
Total	48	100.0	100.0	

To what extent has changed occurred ...

- 1 = greatly increased
- 2 = increased
- 3 = not changed
- 4 = decreased
- 5 = greatly decreased

Q27: The following statements most accurately reflects your opinion regarding changes from 1951 to 1997 to various provisions of AIA A201 pertaining to the Dispute Resolution during the construction phase of a project.

q27

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	14	29.2	29.2	29.2
2.00	2	4.2	4.2	33.3
3.00	32	66.7	66.7	100.0
Total	48	100.0	100.0	

Opinion regarding changes...

1 = The changes to various provisions pertaining to the Dispute Resolution provision have had no effect on the role of the Architect on a project during construction.

2 = The changes to various provisions pertaining to the Dispute Resolution provision have resulted in the role of the Architect assuming more responsibility on a project during construction

3 = The changes to various provisions pertaining to the Dispute Resolution provision have resulted in the role of the Architect assuming less responsibility on a project during construction

Q28: "The changes to the AIA A201 provision concerning the Dispute Resolution have increased the value of the Architect's performance of contract administration services during construction."

q28

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 2.00	1	2.1	2.1	2.1
3.00	17	35.4	35.4	37.5
4.00	21	43.8	43.8	81.3
5.00	9	18.8	18.8	100.0
Total	48	100.0	100.0	

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

Q29: As an Owner or Owner's Representative, with regard to the Dispute Resolution, to what extent, in recent years, has the value of the Architect's contract administration services during construction have changed?

q29

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	2	4.2	4.3	4.3
	3.00	16	33.3	34.0	38.3
	4.00	21	43.8	44.7	83.0
	5.00	8	16.7	17.0	100.0
	Total	47	97.9	100.0	
Missing	System	1	2.1		
Total		48	100.0		

To what extent has changed occurred ...

- 1 = greatly increased
- 2 = increased
- 3 = not changed
- 4 = decreased
- 5 = greatly decreased

Q30: The following statements most accurately reflects your opinion regarding changes from 1951 to 1997 to various provisions of AIA A201 pertaining to the Claims for Extra Cost during the construction phase of a project.

q30

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	18	37.5	37.5	37.5
	2.00	3	6.3	6.3	43.8
	3.00	27	56.3	56.3	100.0
	Total	48	100.0	100.0	

Opinion regarding changes...

1 = The changes to various provisions pertaining to the Claims for Extra Cost provision have had no effect on the role of the Architect on a project during construction.

2 = The changes to various provisions pertaining to the Claims for Extra Cost provision have resulted in the role of the Architect assuming more responsibility on a project during construction

3 = The changes to various provisions pertaining to the Claims for Extra Cost provision have resulted in the role of the Architect assuming less responsibility on a project during construction

Q31: “The changes to the AIA A201 provision concerning the Claims for Extra Cost have increased the value of the Architect’s performance of contract administration services during construction.”

q31

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	2	4.2	4.2	4.2
	3.00	16	33.3	33.3	37.5
	4.00	19	39.6	39.6	77.1
	5.00	11	22.9	22.9	100.0
Total		48	100.0	100.0	

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

Q32: As an Owner or Owner’s Representative, with regard to the Claims for Extra Cost, to what extent, in recent years, has the value of the Architect’s contract administration services during construction have changed?

q32

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	3	6.3	6.3	6.3
	3.00	18	37.5	37.5	43.8
	4.00	17	35.4	35.4	79.2
	5.00	10	20.8	20.8	100.0
Total		48	100.0	100.0	

To what extent has changed occurred ...

- 1 = greatly increased
- 2 = increased
- 3 = not changed
- 4 = decreased
- 5 = greatly decreased

Q33: The following statements most accurately reflects your opinion regarding changes from 1951 to 1997 to various provisions of AIA A201 pertaining to the Shop Drawings during the construction phase of a project.

q33

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	14	29.2	29.2	29.2
	2.00	2	4.2	4.2	33.3
	3.00	32	66.7	66.7	100.0
Total		48	100.0	100.0	

Opinion regarding changes...

1 = The changes to various provisions pertaining to the Shop Drawings provision have had no effect on the role of the Architect on a project during construction.

2 = The changes to various provisions pertaining to the Shop Drawings provision have resulted in the role of the Architect assuming more responsibility on a project during construction

3 = The changes to various provisions pertaining to the Shop Drawings provision have resulted in the role of the Architect assuming less responsibility on a project during construction

Q34: “The changes to the AIA A201 provision concerning the Shop Drawings have increased the value of the Architect’s performance of contract administration services during construction.”

q34

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	3	6.3	6.3	6.3
	3.00	13	27.1	27.1	33.3
	4.00	22	45.8	45.8	79.2
	5.00	10	20.8	20.8	100.0
	Total	48	100.0	100.0	

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

Q32: As an Owner or Owner’s Representative, with regard to the Shop Drawings, to what extent, in recent years, has the value of the Architect’s contract administration services during construction have changed?

q35

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	4	8.3	8.3	8.3
	3.00	15	31.3	31.3	39.6
	4.00	21	43.8	43.8	83.3
	5.00	8	16.7	16.7	100.0
	Total	48	100.0	100.0	

To what extent has changed occurred ...

- 1 = greatly increased
- 2 = increased
- 3 = not changed
- 4 = decreased
- 5 = greatly decreased

Q36: The following statements most accurately reflects your opinion regarding changes from 1951 to 1997 to various provisions of AIA A201 pertaining to the Changes in the Work during the construction phase of a project.

q36

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	19	39.6	39.6	39.6
	2.00	3	6.3	6.3	45.8
	3.00	26	54.2	54.2	100.0
	Total	48	100.0	100.0	

Opinion regarding changes...

1 = The changes to various provisions pertaining to the Changes in the Work provision have had no effect on the role of the Architect on a project during construction.

2 = The changes to various provisions pertaining to the Changes in the Work provision have resulted in the role of the Architect assuming more responsibility on a project during construction

3 = The changes to various provisions pertaining to the Changes in the Work provision have resulted in the role of the Architect assuming less responsibility on a project during construction

Q37: “The changes to the AIA A201 provision concerning the Changes in the Work have increased the value of the Architect’s performance of contract administration services during construction.”

q37

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	3	6.3	6.3	6.3
	3.00	17	35.4	35.4	41.7
	4.00	17	35.4	35.4	77.1
	5.00	11	22.9	22.9	100.0
	Total	48	100.0	100.0	

To what extent the respondents agree or disagree with the statement...

- 1 = strongly agree
- 2 = somewhat agree
- 3 = neither agree nor disagree
- 4 = somewhat disagree
- 5 = strongly disagree

Q38: As an Owner or Owner’s Representative, with regard to the Changes in the Work, to what extent, in recent years, has the value of the Architect’s contract administration services during construction have changed?

q38

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	4	8.3	8.3	8.3
	3.00	24	50.0	50.0	58.3
	4.00	13	27.1	27.1	85.4
	5.00	7	14.6	14.6	100.0
	Total	48	100.0	100.0	

To what extent has changed occurred ...

- 1 = greatly increased
- 2 = increased
- 3 = not changed
- 4 = decreased
- 5 = greatly decreased

NPar Tests

Frequencies

Q24: The following statements most accurately reflects your opinion regarding changes from 1951 to 1997 to various provisions of AIA A201 pertaining to the Role of the Architect during the construction phase of a project.

Opinion regarding changes...

1 = The changes to various provisions pertaining to the Role of the Architect provision have had no effect on the role of the Architect on a project during construction.

2 = The changes to various provisions pertaining to the Role of the Architect provision have resulted in the role of the Architect assuming more responsibility on a project during construction

3 = The changes to various provisions pertaining to the Role of the Architect provision have resulted in the role of the Architect assuming less responsibility on a project during construction

q24

	Observed N	Expected N	Residual
1.00	9	28.8	-19.8
2.00	3	2.4	.6
3.00	36	16.8	19.2
Total	48		

**Note: Chi-squared "expected" frequency of:
60% (no effect)
5% (more responsibility)
35% (less responsibility)**

Q27: The following statements most accurately reflects your opinion regarding changes from 1951 to 1997 to various provisions of AIA A201 pertaining to the Dispute Resolution during the construction phase of a project.

Opinion regarding changes...

1 = The changes to various provisions pertaining to the Dispute Resolution provision have had no effect on the role of the Architect on a project during construction.

2 = The changes to various provisions pertaining to the Dispute Resolution provision have resulted in the role of the Architect assuming more responsibility on a project during construction

3 = The changes to various provisions pertaining to the Dispute Resolution provision have resulted in the role of the Architect assuming less responsibility on a project during construction

q27

	Observed N	Expected N	Residual
1.00	14	28.8	-14.8
2.00	2	2.4	-.4
3.00	32	16.8	15.2
Total	48		

**Note: Chi-squared "expected" frequency of:
60% (no effect)
5% (more responsibility)
35% (less responsibility)**

Q30: The following statements most accurately reflects your opinion regarding changes from 1951 to 1997 to various provisions of AIA A201 pertaining to the Claims for Extra Cost during the construction phase of a project.

Opinion regarding changes...

1 = The changes to various provisions pertaining to the Claims for Extra Cost provision have had no effect on the role of the Architect on a project during construction.

2 = The changes to various provisions pertaining to the Claims for Extra Cost provision have resulted in the role of the Architect assuming more responsibility on a project during construction

3 = The changes to various provisions pertaining to the Claims for Extra Cost provision have resulted in the role of the Architect assuming less responsibility on a project during construction

q30

	Observed N	Expected N	Residual
1.00	18	28.8	-10.8
2.00	3	2.4	.6
3.00	27	16.8	10.2
Total	48		

**Note: Chi-squared “expected” frequency of:
60% (no effect)
5% (more responsibility)
35% (less responsibility)**

Q33: The following statements most accurately reflects your opinion regarding changes from 1951 to 1997 to various provisions of AIA A201 pertaining to the Shop Drawings during the construction phase of a project.

Opinion regarding changes...

1 = The changes to various provisions pertaining to the Shop Drawings provision have had no effect on the role of the Architect on a project during construction.

2 = The changes to various provisions pertaining to the Shop Drawings provision have resulted in the role of the Architect assuming more responsibility on a project during construction

3 = The changes to various provisions pertaining to the Shop Drawings provision have resulted in the role of the Architect assuming less responsibility on a project during construction

q33

	Observed N	Expected N	Residual
1.00	14	28.8	-14.8
2.00	2	2.4	-.4
3.00	32	16.8	15.2
Total	48		

**Note: Chi-squared “expected” frequency of:
60% (no effect)
5% (more responsibility)
35% (less responsibility)**

Q36: The following statements most accurately reflects your opinion regarding changes from 1951 to 1997 to various provisions of AIA A201 pertaining to the Changes in the Work during the construction phase of a project.

Opinion regarding changes...

1 = The changes to various provisions pertaining to the Changes in the Work provision have had no effect on the role of the Architect on a project during construction.

2 = The changes to various provisions pertaining to the Changes in the Work provision have resulted in the role of the Architect assuming more responsibility on a project during construction

3 = The changes to various provisions pertaining to the Changes in the Work provision have resulted in the role of the Architect assuming less responsibility on a project during construction

q36

	Observed N	Expected N	Residual
1.00	19	28.8	-9.8
2.00	3	2.4	.6
3.00	26	16.8	9.2
Total	48		

**Note: Chi-squared "expected" frequency of:
60% (no effect)
5% (more responsibility)
35% (less responsibility)**

Chi-Square Test

Test Statistics

	q24	q27	q30	q33	q36
Chi-Square ^a	35.705	21.425	10.393	21.425	8.523
df	2	2	2	2	2
Asymp. Sig.	.000	.000	.006	.000	.014

T-Test**One-Sample Statistics**

	N	Mean	Std. Deviation	Std. Error Mean
q25	48	4.0208	.78522	.11334
q26	48	3.8542	.77156	.11136
q28	48	3.7917	.77070	.11124
q29	47	3.7447	.79312	.11569
q31	48	3.8125	.84189	.12152
q32	48	3.7083	.87418	.12618
q34	48	3.8125	.84189	.12152
q35	48	3.6875	.85443	.12333
q37	48	3.7500	.88726	.12807
q38	48	3.4792	.85027	.12273

One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
q25	9.007	47	.000	1.02083	.7928	1.2488
q26	7.670	47	.000	.85417	.6301	1.0782
q28	7.117	47	.000	.79167	.5679	1.0155
q29	6.437	46	.000	.74468	.5118	.9776
q31	6.686	47	.000	.81250	.5680	1.0570
q32	5.614	47	.000	.70833	.4545	.9622
q34	6.686	47	.000	.81250	.5680	1.0570
q35	5.575	47	.000	.68750	.4394	.9356
q37	5.856	47	.000	.75000	.4924	1.0076
q38	3.904	47	.000	.47917	.2323	.7261

APPENDIX D6 - INTERPRETATIONS OF STATISTICAL ANALYSIS

COMPLETE RESULTS AND INTERPRETATIONS OF PHASE III STATISTICAL ANALYSIS

For Phase III, the final phase of the three-phase methodology, data was collected and the results reported by descriptive and statistical analysis. Chapter 6 provides a complete descriptive analysis and the three-step statistical analysis of the data. Appendix D5 provides the output of the descriptive and statistical data. Appendix D6 thoroughly details and describes the interpretation of the responses recorded and the statistical analysis.

In Phase III, descriptive statistics was used to describe basic patterns in the data, and summarize the characteristics of the participants and the overall survey results, e.g., Questions 1 – 8 renumbered Q1 – Q23. The Single-Sample T-test was applied in Phase III to statistically check the research hypotheses investigated in the survey questionnaire, where Question 9b, 9c, 10b, 10c, 11b, 11c, 12b, 12c, 13b, and 13c renumbered Q25, Q26, Q28, Q29, Q31, Q32, Q34, Q35, Q37, and Q38, respectively.

In addition, the statistical analysis employed was the commonly used method of the Chi-Square test to statistically check the research hypotheses investigated. Chi-Square is a non-parametric method, which does not require distributional assumptions about the data and is appropriately used to analyze survey responses when they are not ordered, but categorical (e.g. when the responses vary from “no effect”, “more responsibility”, or “less responsibility”). The Chi-Square Test is appropriately used to analyze categorical data, such as Questions 9a, 10a, 11a, 12a, and 13a renumbered Q24, Q27, Q30, Q33, and Q36, respectively.

The Chi-Square Test compares the “expected” and “observed” frequencies of the survey responses. It detects the differences between suggested (“expected”) response frequency distribution and “observed” distribution. For this research, the test framework expected frequencies were favoring neutral (score = 3) answers, e.g., the expected frequency distribution is set at 60% (no effect), 5% (more responsibility), 35% (less responsibility). The Chi-Square frequency table tabulates the observed score of the respondents. And, by executing the Chi-Square test with the expected frequency distribution noted above, the difference between observed and expected frequency is calculated and determined to be significant or not (e.g. the asymptotic significance or pvalue is less than the universally accepted 0.05). If the observed frequency of the neutral answer was found to be significantly lower than expected, then the alternative hypothesis was chosen over the null hypothesis. If the observed frequency of the neutral answer was found to be higher than expected, then the null hypothesis was chosen over the alternative hypothesis. Appendix D6 provides the results of the three-step statistical analysis of the data recorded for Part III of the survey, which is the core of the investigation of Phase III of this research and the central part of the dissertation research, such as Questions 9a -13a of the Phase III survey (e.g. Q24, Q27, Q30, Q33, an Q36).

Phase III surveys are employed to measure attitude, beliefs, opinions, and expectations present in the owner-population in the construction industry. **Part III: Impact of Change on the Value-added of the Design Professional** of the survey is the core of the investigation of Phase III. There are five (5) areas of inquiry (e.g., Questions 9-13) with corresponding three (3) questions (e.g., Questions 9a-9c). Each inquiry of Part III consists of three questions regarding the five key provisions, which were determined directly from the results of Phase II of this dissertation, reported in Chapter 5.6. The five areas of inquiry are the contract provisions:

1. Role of the Architect (Question 9)
2. Dispute Resolution (Question 10)
3. Claims for Extra Cost (Question 11)
4. Shop Drawings (Question 12)
5. Changes in the Work (Question 13)

QUESTION 9: ROLE OF THE ARCHITECT CONTRACT PROVISION

A description of the responses to Question 9A is captured in the below figure, Figure 1.

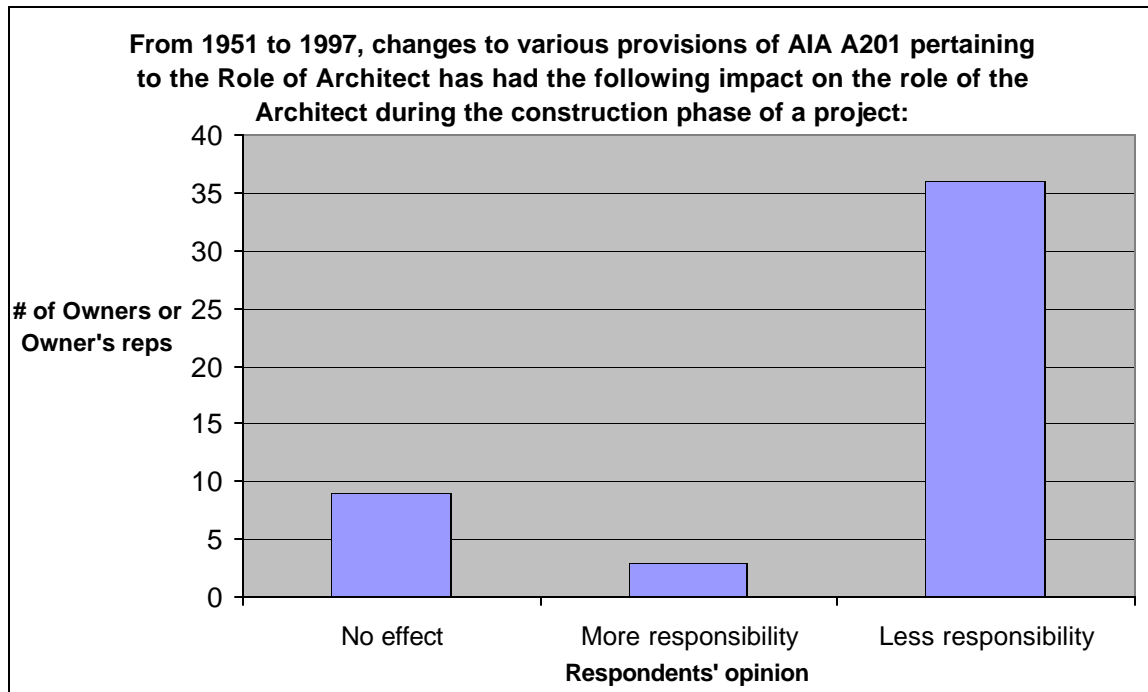


Figure 1:

Hypothesis H1a: From 1951 to 1997, changes to various provisions of AIA A201 pertaining to the **Role of the Architect** have had an impact on the role of the Architect during the construction phase of a project. (Question 9a renumbered to Question 24 for analysis)

H1a0: From 1951 to 1997, changes to various provisions pertaining to the AIA A201 **Role of the Architect** provision have had no effect on the role of the Architect during the construction phase of a project.

H1aA: From 1951 to 1997, changes to various provisions pertaining to the AIA A201 **Role of the Architect** provision have had an effect of less responsibility on the role of the Architect during the construction phase of a project.

Test Method: As discussed in Chapter 3.4.4.2, with the assistance of a statistical consultant and use of the SPSS 12.0 Student Version, the non-parametric Chi-Square test was chosen since the data is not ordinal, just categorical. There were 48 respondents. Therefore, the expected frequency values set at 28.8 respondents = 60% (no effect), 2.4 respondents = 5% (more responsibility), and 16.8 respondents = 35% (less responsibility). Also, the findings were tested at the universally accepted p-value = 0.05. The Chi-Square test was executed with the expected frequency distribution noted above, the difference between observed and expected frequency is calculated and determined to be significant or not. If the p-value (e.g. asymptotic significance) is less than 0.05, there is an effect: the null hypothesis (*H1a0*) is rejected in favor of the alternative hypothesis (*H1aA*). The direction of the effect is noted by the frequency distribution of the responses (e.g. Frequency, for example, if there are 36 out of 48 respondents reporting 'less responsibility', thus a score of 36 respondents, who selected 'less responsibility'), then it is concluded that there is an effect and the effect is 'less responsibility'.

Test Results: For the Chi-Square test, the observed p-value is equal to 0.001, which is less than 0.05 (See Appendix D5, all Chi-Square Test results on page 16 of 17). Hence, the null hypothesis (*H1a0*) is rejected in favor of the alternative hypothesis (*H1aA*). Also, there exists a Chi-Square frequency distribution of 9 respondents scored 'no effect', 3 respondents for 'more responsibility', and 36 respondents for 'less responsibility'. Therefore, the frequency distribution of responses (36 of 48) selected 'less responsibility'. (See Appendix D5, page 9 of 17, Question 24).

Conclusion: From 1951 to 1997, changes to various provisions pertaining to the **Role of the Architect** provision have resulted in the Architect assuming less responsibility during the construction phase of a project, which is reflected in the descriptive results shown in Figure 1.

A description of the responses to Question 9B is captured in the below figure, Figure 2.

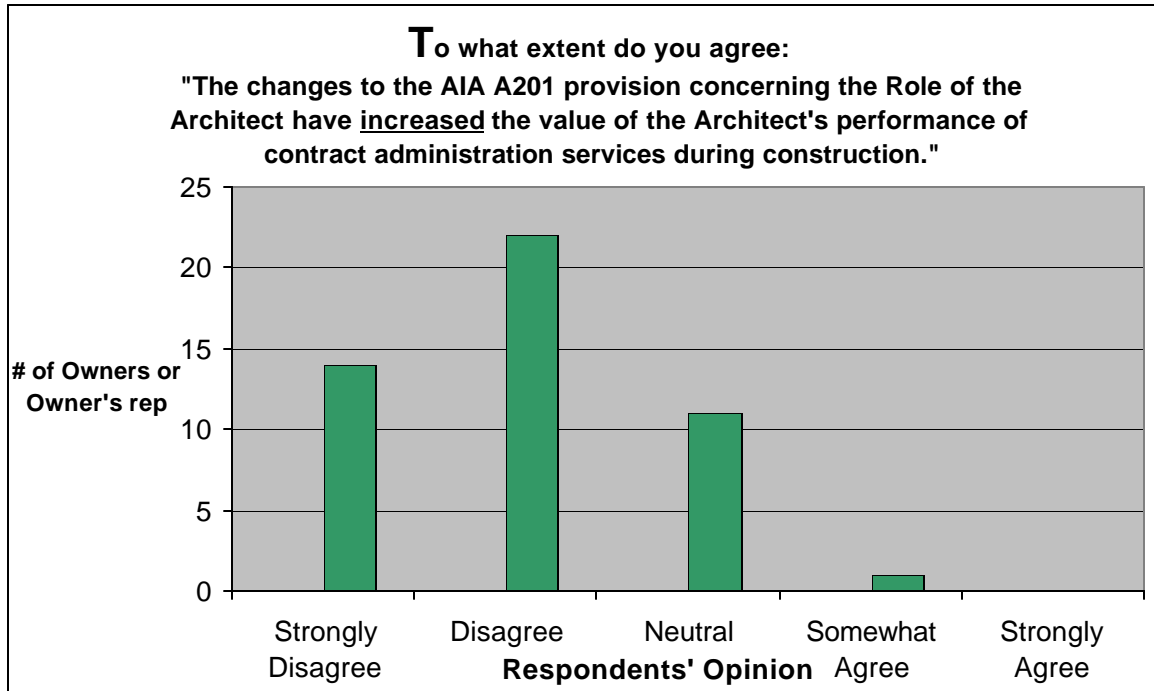


Figure 2:

Hypothesis H1b: Changes to the AIA A201 provision concerning the **Role of the Architect** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project. (Question 9b renumbered to Question 25 for analysis)

H1b0: Changes to the AIA A201 provision concerning the **Role of the Architect** have increased the value of the Architect's performance of contract administration services during the construction phase of a project. The mean score for the respondent's opinion on the increased value of the Architect's performance due to changes to the AIA A201 **Role of the Architect** provision on the of contract administration services during the construction phase of a project is *equal or greater than* the neutral value of 3. (In other words, a respondent's opinion is neutral or skewed towards 'disagrees' with the hypothesis.)

H1bA: Changes to the AIA A201 provision concerning the **Role of the Architect** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project. The mean score for the respondent's opinion on the increased value of the Architect's performance due to changes to the AIA A201 **Role of the Architect** provision on the of contract administration services during the construction phase of a project is *less than* the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree' with the hypothesis.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.001, which is less than the universally accepted value of 0.05, and a mean difference of 1.02 (See Appendix D5, page 17 of 17, Question 25). Hence, it is concluded that the mean score for the respondent's opinion on the substantial effect of the **Role of the Architect** provision on the construction process and contract administration is greater than the neutral value of 3. The mean for Question 25

is 4.0208 (See Appendix D5, page 17 of 17). Therefore, the null hypothesis (*H1b0*) is accepted. The opinions of the respondents are skewed towards 'disagree.'

Conclusion: Changes to the AIA A201 provision concerning the **Role of the Architect** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project, which is reflected in the descriptive results shown in Figure 2.

A description of the responses to Question 9C is captured in the below figure, Figure 3.

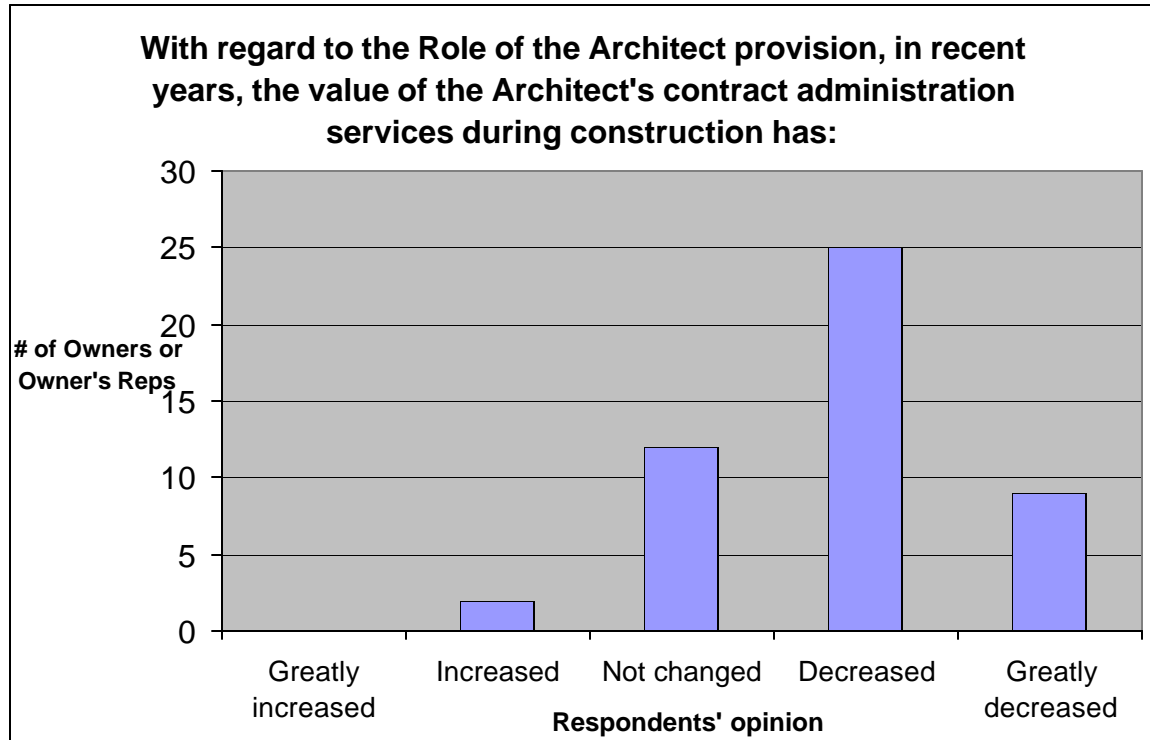


Figure 3:

Hypothesis H1c: With regard to the **Role of the Architect** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has decreased in recent years. (Question 9c renumbered to Question 26 for analysis)

H1c0: With regard to the **Role of the Architect** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has increased in recent years. The mean score for the respondent's opinion that the value of the Architect's contract administration services during construction has decreased in recent years is *equal or greater than* the neutral value of 3. (In other words, the respondent is skewed towards the direction of 'not changed', 'decreased', or 'greatly decreased'.)

H1cA: With regard to the **Role of the Architect** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has decreased in recent years. The mean score for the respondent's opinion that the value of the Architect's contract administration services during construction has decreased in recent years is *less than* the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'greatly increased' and 'increased'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.001, which is less than the universally accepted value of 0.05, and a mean difference of 0.85 (See Appendix D5, page 17 of 17, Question 26). Hence, it is concluded that the mean score for the respondent's opinion on the substantial effect of the **Role of the Architect** provision on the construction process and contract administration is greater than the neutral value of 3. The mean for Question 26

is 3.8542 (See Appendix D5, page 17 of 17). Therefore, the null hypothesis ($H1b0$) is accepted. The opinions of the respondents are skewed towards 'decreased.'

Conclusion: With regard to the **Role of the Architect** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction have decreased in recent years, which is reflected in the descriptive results shown in Figure 3.

QUESTION 10: DISPUTE RESOLUTION CONTRACT PROVISION

A description of the responses to Question 10A is captured in the below figure, Figure 4.

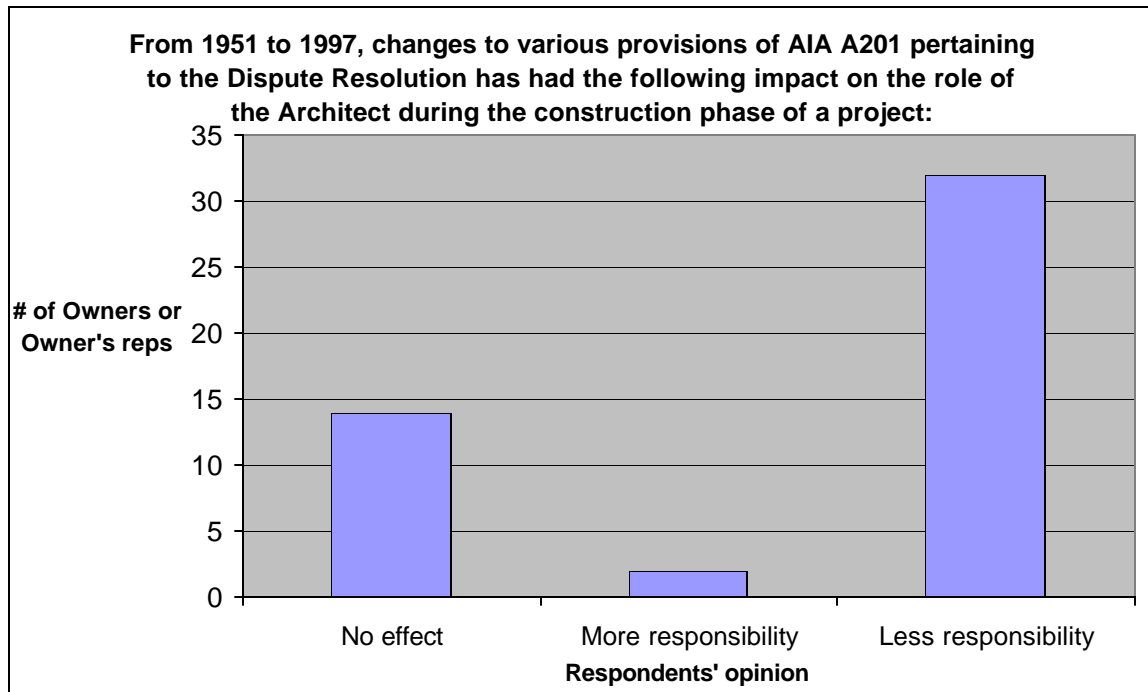


Figure 4:

Hypothesis 2a: From 1951 to 1997, changes to various provisions of AIA A201 pertaining to the **Dispute Resolution** have had an impact on the role of the Architect during the construction phase of a project. (Question 10a renumbered to Question 27 for analysis)

H2a0: From 1951 to 1997, changes to various provisions pertaining to the AIA A201 **Dispute Resolution** provision have had no effect on the role of the Architect during the construction phase of a project.

H2aA: From 1951 to 1997, changes to various provisions pertaining to the AIA A201 **Dispute Resolution** provision have had an effect of less responsibility on the role of the Architect during the construction phase of a project.

Test Method: Chi-Square Test

Test Results: For the Chi-Square test, the observed p-value is equal to 0.001, which is less than 0.05 (See Appendix D5, all Chi-Square Test results on page 16 of 17). Hence, the null hypothesis (*H1a0*) is rejected in favor of the alternative hypothesis (*H1aA*). Also, there exists a Chi-Square frequency distribution of 14 respondents scored 'no effect', 2 respondents for 'more responsibility', and 32 respondents for 'less responsibility'. Therefore, the dominant cell of responses (32 of 48) selected 'less responsibility'. (See Appendix D5, page 10 of 17, Question 27).

Conclusion: From 1951 to 1997, changes to various provisions pertaining to the **Dispute Resolution** provision have resulted in the Architect assuming less responsibility during the construction phase of a project, which is reflected in the descriptive results shown in Figure 4.

A description of the responses to Question 10B is captured in the below figure, Figure 5.

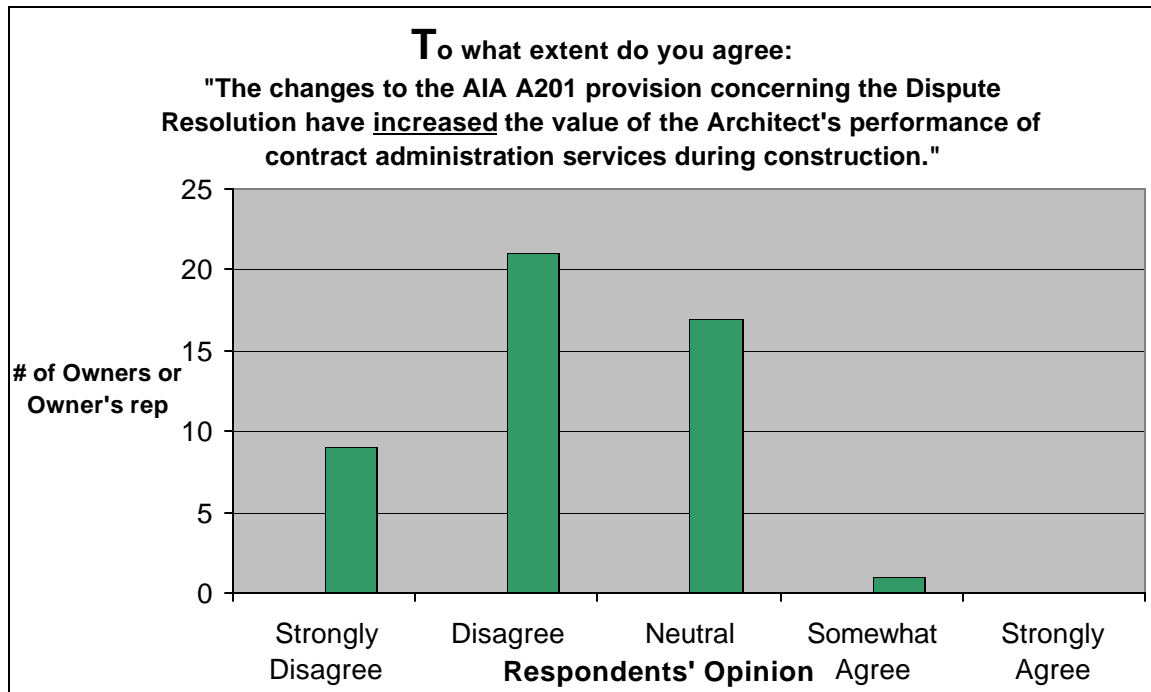


Figure 5:

Hypothesis H2b: Changes to the AIA A201 provision concerning the **Dispute Resolution** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project. (Question 10b renumbered to Question 28 for analysis)

H2b0: Changes to the AIA A201 provision concerning the **Dispute Resolution** have increased the value of the Architect's performance of contract administration services during the construction phase of a project. The mean score for the respondent's opinion on the increased value of the Architect's performance due to changes to the AIA A201 **Dispute Resolution** provision on the of contract administration services during the construction phase of a project is *equal or greater than* the neutral value of 3. (In other words, a respondent's opinion is neutral or skewed towards 'disagrees' with the hypothesis.)

H2bA: Changes to the AIA A201 provision concerning the **Dispute Resolution** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project. The mean score for the respondent's opinion on the increased value of the Architect's performance due to changes to the AIA A201 **Dispute Resolution** provision on the of contract administration services during the construction phase of a project is *less than* the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.001, which is less than the universally accepted value of 0.05, and a mean difference of 0.79 (See Appendix D5, page 17 of 17, Question 28). Hence, it is concluded that the mean score for the respondent's opinion on the substantial effect of the **Dispute Resolution** provision on the construction process and contract administration is greater than the neutral value of 3. The mean for Question 28 is 3.7917 (See Appendix D5, page 17 of 17). Therefore, the null hypothesis (*H1b0*) is accepted. The opinions of the respondents are skewed towards 'disagree.'

Conclusion: Changes to the AIA A201 provision concerning the **Dispute Resolution** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project, which is reflected in the descriptive results shown in Figure 5.

A description of the responses to Question 10C is captured in the below figure, Figure 6.

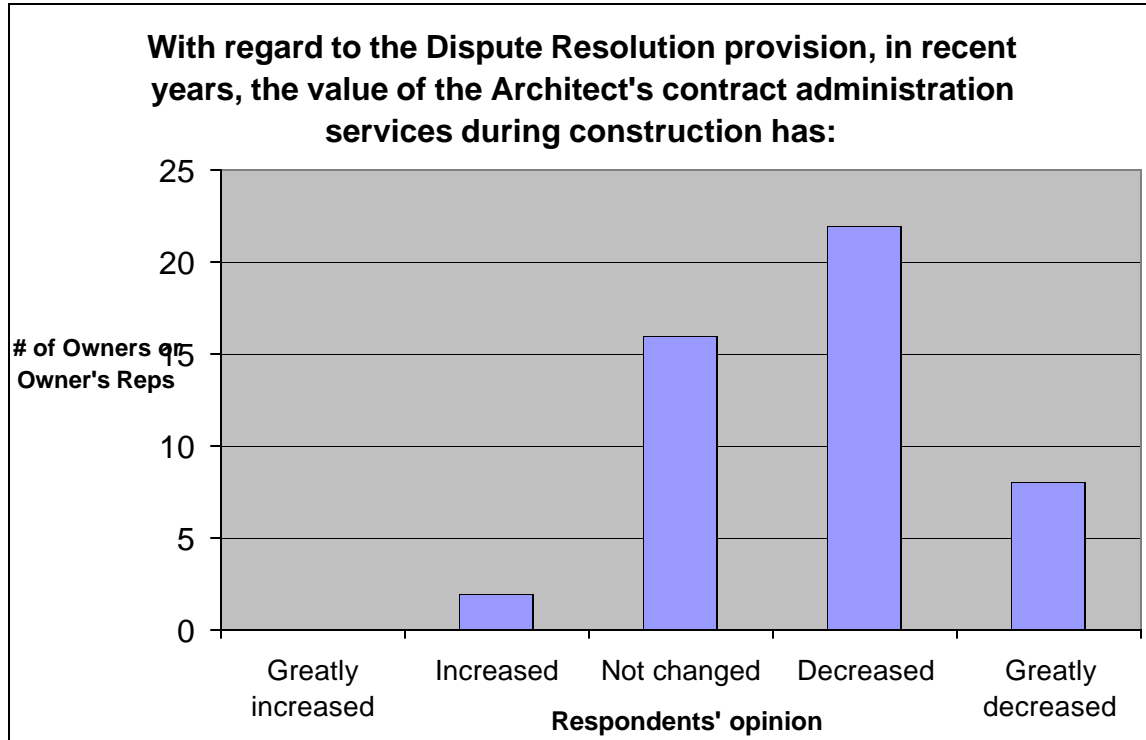


Figure 6:

Hypothesis H2c: With regard to the **Dispute Resolution** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has decreased in recent years. (Question 10c renumbered to Question 29 for analysis)

H2c0: With regard to the **Dispute Resolution** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has increased in recent years. The mean score for the respondent's opinion that the value of the Architect's contract administration services during construction has decreased in recent years is *equal or greater than* the neutral value of 3. (In other words, the respondent is skewed towards the direction of 'not changed', 'decreased', or 'greatly decreased'.)

H2cA: With regard to the **Dispute Resolution** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has decreased in recent years. The mean score for the respondent's opinion that the value of the Architect's contract administration services during construction has decreased in recent years is *less than* the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'greatly increased' and 'increased'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.001, which is less than the universally accepted value of 0.05, and a mean difference of 0.74 (See Appendix D5, page 17 of 17, Question 29). Hence, it is concluded that the mean score for the respondent's opinion on the substantial effect of the **Dispute Resolution** provision on the construction process and contract administration is greater than the neutral value of 3. The mean for Question 29 is 3.7447 (See Appendix D5, page 17 of 17). Therefore, the null hypothesis (**H1b0**) is accepted. The opinions of the respondents are skewed towards 'decreased.'

Conclusion: With regard to the **Dispute Resolution** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction have decreased in recent years, which is reflected in the descriptive results shown in Figure 6.

QUESTION 11: CLAIMS CONTRACT PROVISION

A description of the responses to Question 11A is captured in the below figure, Figure 7.

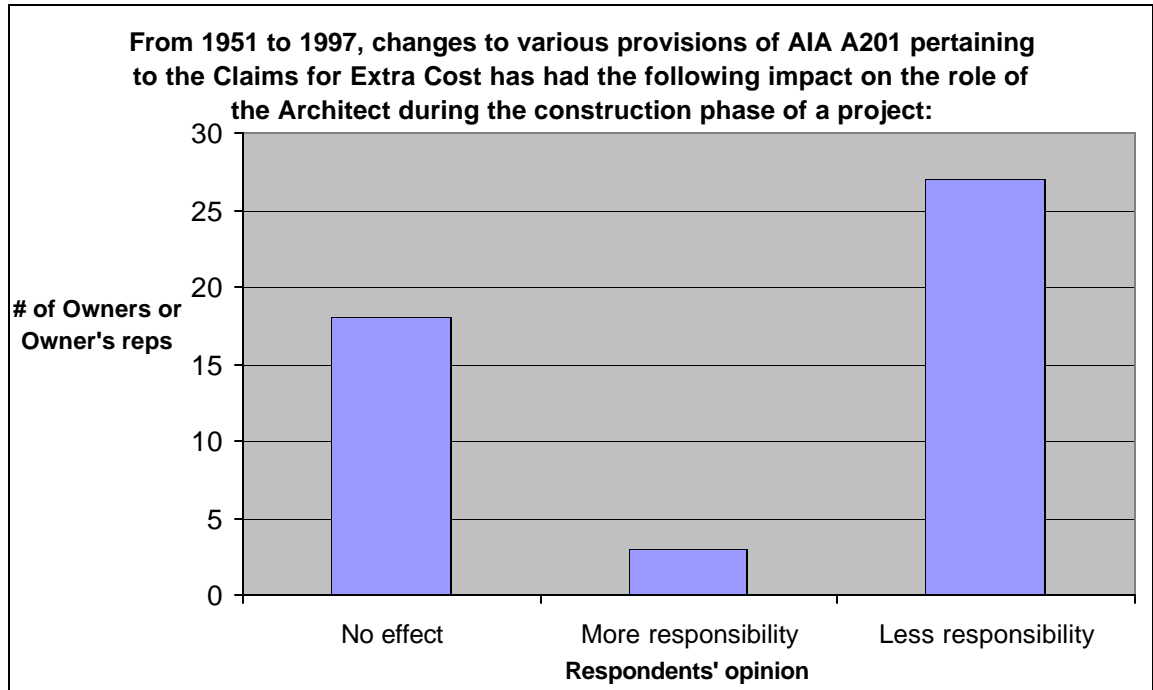


Figure 7:

Hypothesis H3a: From 1951 to 1997, changes to various provisions of AIA A201 pertaining to the **Claims for Extra Cost** have had an impact on the role of the Architect during the construction phase of a project. (Question 11a renumbered to Question 30 for analysis)

H3a0: From 1951 to 1997, changes to various provisions pertaining to the AIA A201 **Claims for Extra Cost** provision have had no effect on the role of the Architect during the construction phase of a project.

H3aA: From 1951 to 1997, changes to various provisions pertaining to the AIA A201 **Claims for Extra Cost** provision have had an effect of less responsibility on the role of the Architect during the construction phase of a project.

Test Method: Chi-Square Test

Test Results: For the Chi-Square test, the observed p-value is equal to 0.001, which is less than 0.05 (See Appendix D5, all Chi-Square Test results on page 16 of 17). Hence, the null hypothesis (*H1a0*) is rejected in favor of the alternative hypothesis (*H1aA*). Also, there exists a Chi-Square frequency distribution of 18 respondents scored 'no effect', 3 respondents for 'more responsibility', and 27 respondents for 'less responsibility'. Therefore, the dominant cell of responses (27 of 48) selected 'less responsibility'. (See Appendix D5, page 11 of 17, Question 30).

Conclusion: From 1951 to 1997, changes to various provisions pertaining to the **Claims for Extra Cost** provision have resulted in the Architect assuming less responsibility during the construction phase of a project, which is reflected in the descriptive results shown in Figure 7.

A description of the responses to Question 11B is captured in the below figure, Figure 8.

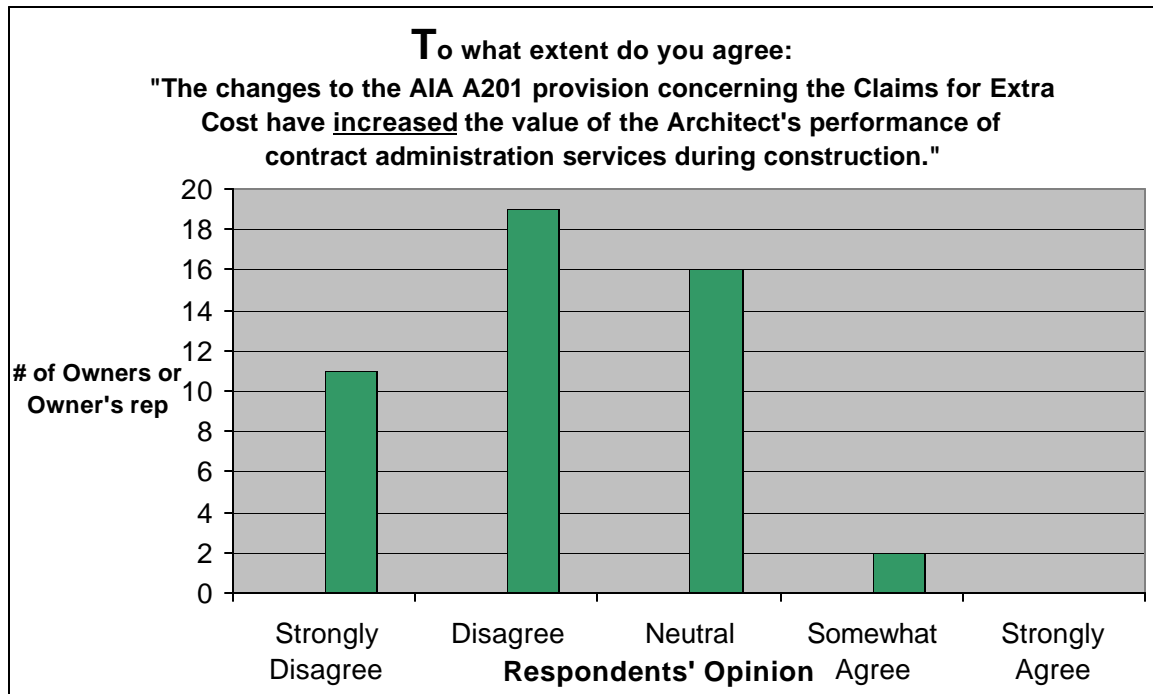


Figure 8:

Hypothesis H3b: Changes to the AIA A201 provision concerning the **Claims for Extra Cost** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project. (Question 11b renumbered to Question 31 for analysis)

H3b0: Changes to the AIA A201 provision concerning the **Claims for Extra Cost** have increased the value of the Architect's performance of contract administration services during the construction phase of a project. The mean score for the respondent's opinion on the increased value of the Architect's performance due to changes to the AIA A201 **Claims for Extra Cost** provision on the of contract administration services during the construction phase of a project is *equal or greater than* the neutral value of 3. (In other words, a respondent's opinion is neutral or skewed towards 'disagrees' with the hypothesis.)

H3bA: Changes to the AIA A201 provision concerning the **Claims for Extra Cost** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project. The mean score for the respondent's opinion on the increased value of the Architect's performance due to changes to the AIA A201 **Claims for Extra Cost** provision on the of contract administration services during the construction phase of a project is *less than* the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.001, which is less than the universally accepted value of 0.05, and a mean difference of 0.81 (See Appendix D5, page 17 of 17, Question 31). Hence, it is concluded that the mean score for the respondent's opinion on the substantial effect of the **Claims for Extra Cost** provision on the construction process and contract administration is greater than the neutral value of 3. The mean for Question 31 is 3.81250 (See Appendix D5, page 17 of 17). Therefore, the null hypothesis (**H1b0**) is accepted. The opinions of the respondents are skewed towards 'disagree.'

Conclusion: Changes to the AIA A201 provision concerning the **Claims for Extra Cost** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project, which is reflected in the descriptive results shown in Figure 8.

A description of the responses to Question 11C is captured in the below figure, Figure 9.

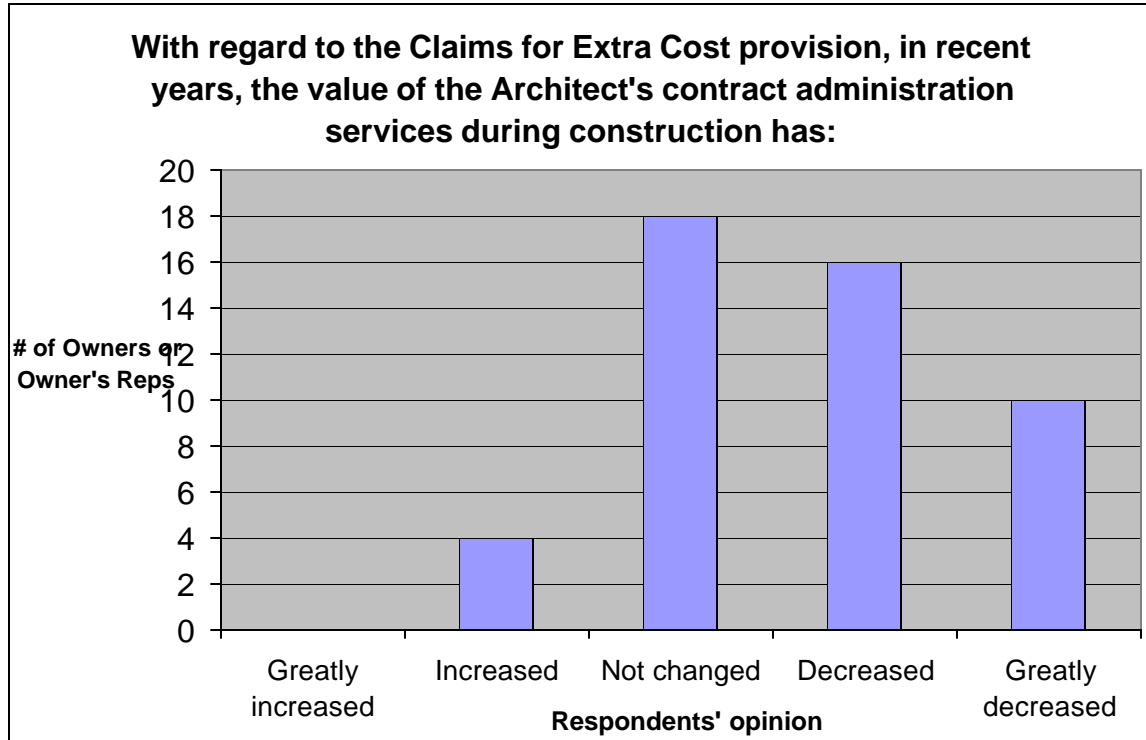


Figure 9:

Hypothesis H3c: With regard to the **Claims for Extra Cost** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has decreased in recent years. (Question 11c renumbered to Question 32 for analysis)

H3c0: With regard to the **Claims for Extra Cost** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has increased in recent years. The mean score for the respondent's opinion that the value of the Architect's contract administration services during construction has decreased in recent years is *equal or greater than* the neutral value of 3. (In other words, the respondent is skewed towards the direction of 'not changed', 'decreased', or 'greatly decreased'.)

H3cA: With regard to the **Claims for Extra Cost** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has decreased in recent years. The mean score for the respondent's opinion that the value of the Architect's contract administration services during construction has decreased in recent years is *less than* the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'greatly increased' and 'increased'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.001, which is less than the universally accepted value of 0.05, and a mean difference of 0.71 (See Appendix D5, page 17 of 17, Question 32). Hence, it is concluded that the mean score for the respondent's opinion on the substantial effect of the **Claims for Extra Cost** provision on the construction process and contract administration is greater than the neutral value of 3. The mean for Question 32 is 3.70833 (See Appendix D5, page 17 of 17). Therefore, the null hypothesis (*H1b0*) is accepted. The opinions of the respondents are skewed towards 'decreased.'

Conclusion: With regard to the **Claims for Extra Cost** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction have decreased in recent years, which is reflected in the descriptive results shown in Figure 9.

QUESTION 12: SHOP DRAWINGS CONTRACT PROVISION

A description of the responses to Question 12A is captured in the below figure, Figure 10.

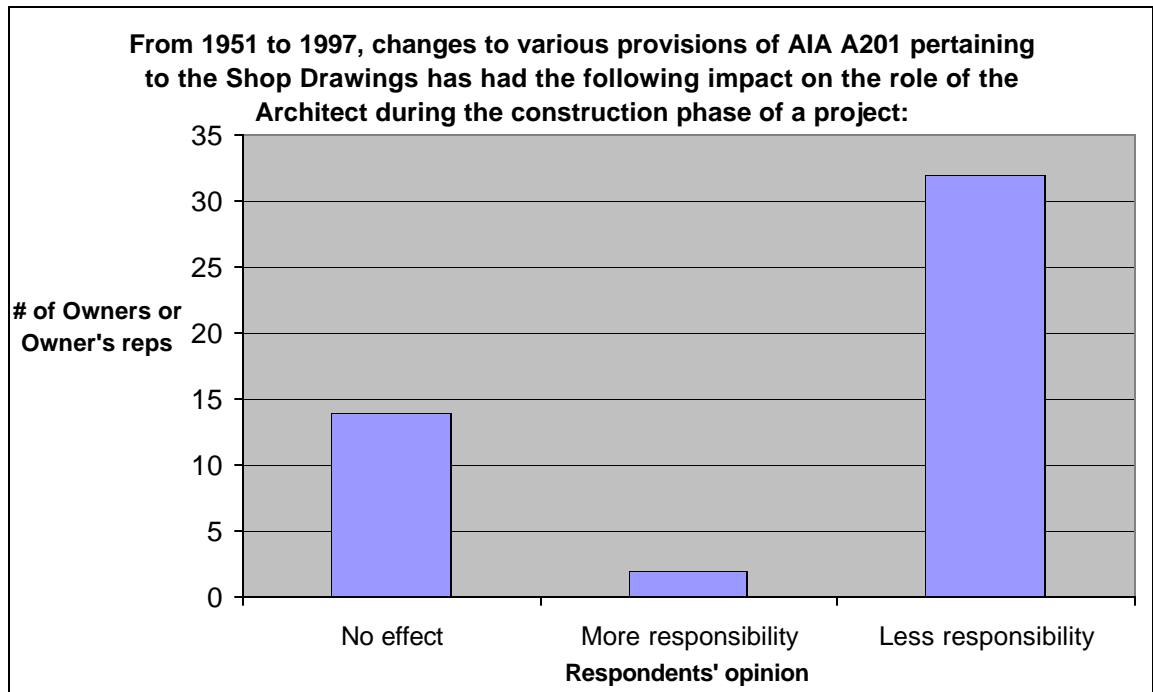


Figure 10:

Hypothesis H4a: From 1951 to 1997, changes to various provisions of AIA A201 pertaining to the **Shop Drawings** have had an impact on the role of the Architect during the construction phase of a project. (Question 12a renumbered to Question 33 for analysis)

H4a0: From 1951 to 1997, changes to various provisions pertaining to the AIA A201 **Shop Drawings** provision have had no effect on the role of the Architect during the construction phase of a project.

H4aA: From 1951 to 1997, changes to various provisions pertaining to the AIA A201 **Shop Drawings** provision have had an effect of less responsibility on the role of the Architect during the construction phase of a project.

Test Method: Chi-Square Test

Test Results: For the Chi-Square test, the observed p-value is equal to 0.001, which is less than 0.05 (See Appendix D5, all Chi-Square Test results on page 16 of 17). Hence, the null hypothesis (*H1a0*) is rejected in favor of the alternative hypothesis (*H1aA*). Also, there exists a Chi-Square frequency distribution of 14 respondents scored 'no effect', 2 respondents for 'more responsibility', and 32 respondents for 'less responsibility'. Therefore, the dominant cell of responses (32 of 48) selected 'less responsibility'. (See Appendix D5, page 12 of 17, Question 33).

Conclusion: From 1951 to 1997, changes to various provisions pertaining to the **Shop Drawings** provision have resulted in the Architect assuming less responsibility during the construction phase of a project, which is reflected in the descriptive results shown in Figure 10.

A description of the responses to Question 12B is captured in the below figure, Figure 11.

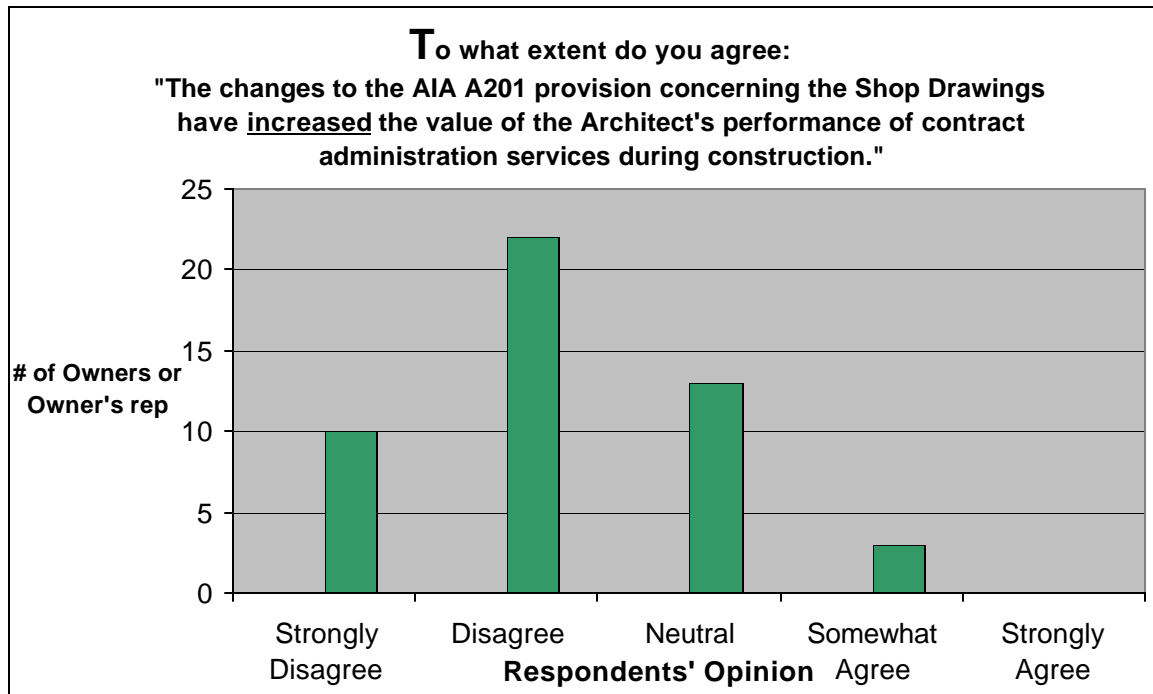


Figure 11:

Hypothesis H4b: Changes to the AIA A201 provision concerning the **Shop Drawings** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project. (Question 12b renumbered to Question 34 for analysis)

H4b0: Changes to the AIA A201 provision concerning the **Shop Drawings** have increased the value of the Architect's performance of contract administration services during the construction phase of a project. The mean score for the respondent's opinion on the increased value of the Architect's performance due to changes to the AIA A201 **Shop Drawings** provision on the of contract administration services during the construction phase of a project is *equal or greater than* the neutral value of 3. (In other words, a respondent's opinion is neutral or skewed towards 'disagrees' with the hypothesis.)

H4bA: Changes to the AIA A201 provision concerning the **Shop Drawings** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project. The mean score for the respondent's opinion on the increased value of the Architect's performance due to changes to the AIA A201 **Shop Drawings** provision on the of contract administration services during the construction phase of a project is *less than* the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.001, which is less than the universally accepted value of 0.05, and a mean difference of 0.81 (See Appendix D5, page 17 of 17, Question 34). Hence, it is concluded that the mean score for the respondent's opinion on the substantial effect of the **Shop Drawings** provision on the construction process and contract administration is greater than the neutral value of 3. The mean for Question 34 is 3.81250 (See Appendix D5, page 17 of 17). Therefore, the null hypothesis (*H1b0*) is accepted. The opinions of the respondents are skewed towards 'disagree.'

Conclusion: Changes to the AIA A201 provision concerning the **Shop Drawings** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project, which is reflected in the descriptive results shown in Figure 11.

A description of the responses to Question 12C is captured in the below figure, Figure 12.

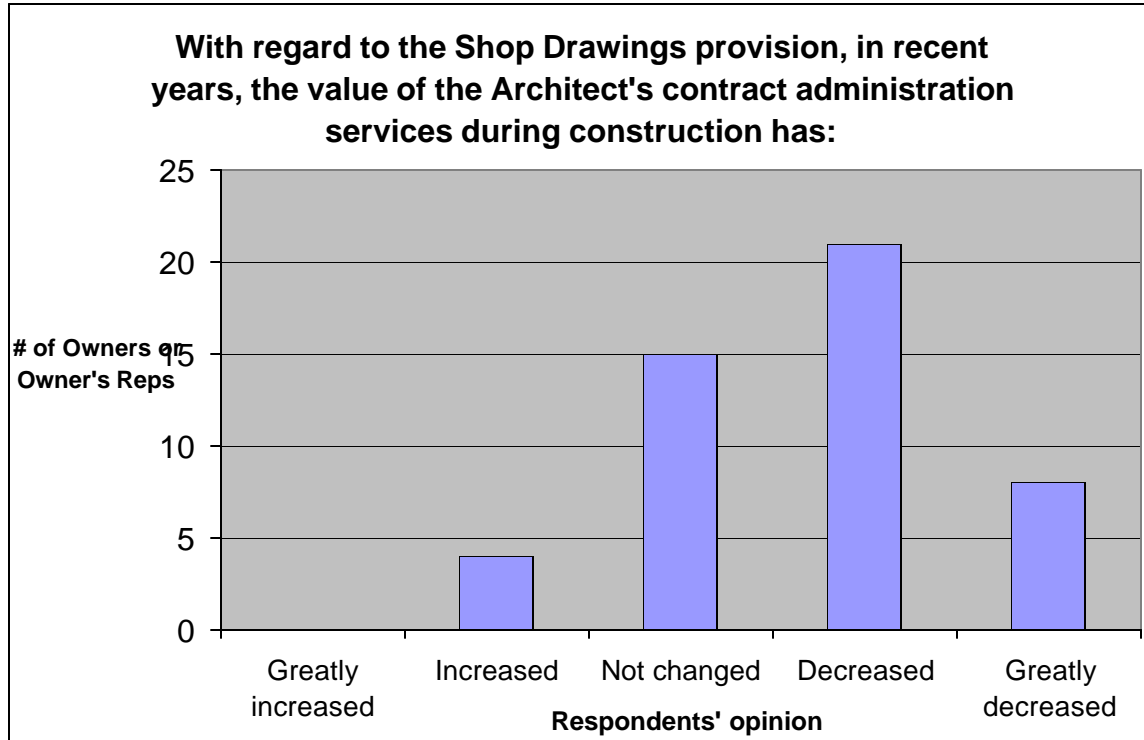


Figure 12:

Hypothesis H4c: With regard to the **Shop Drawings** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has decreased in recent years. (Question 12c renumbered to Question 35 for analysis)

H4c0: With regard to the **Shop Drawings** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has increased in recent years. The mean score for the respondent's opinion that the value of the Architect's contract administration services during construction has decreased in recent years is *equal or greater than* the neutral value of 3. (In other words, the respondent is skewed towards the direction of 'not changed', 'decreased', or 'greatly decreased'.)

H4cA: With regard to the **Shop Drawings** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has decreased in recent years. The mean score for the respondent's opinion that the value of the Architect's contract administration services during construction has decreased in recent years is *less than* the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'greatly increased' and 'increased'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.001, which is less than the universally accepted value of 0.05, and a mean difference of 0.69 (See Appendix D5, page 17 of 17, Question 35). Hence, it is concluded that the mean score for the respondent's opinion on the substantial effect of the **Shop Drawings** provision on the construction process and contract administration is greater than the neutral value of 3. The mean for Question 35 is 3.68750 (See Appendix D5, page 17 of 17). Therefore, the null hypothesis (*H1b0*) is accepted. The opinions of the respondents are skewed towards 'decreased.'

Conclusion: With regard to the **Shop Drawings** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction have decreased in recent years, which is reflected in the descriptive results shown in Figure 12.

QUESTION 13: CHANGES IN THE WORK CONTRACT PROVISION

A description of the responses to Question 13A is captured in the below figure, Figure 13.

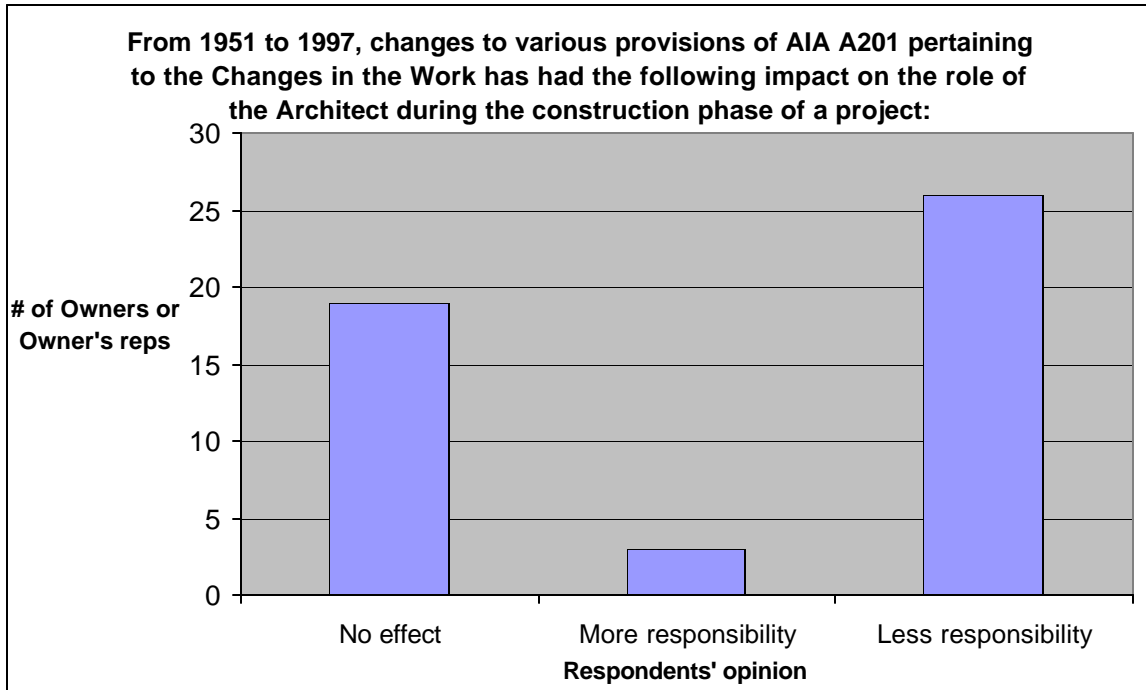


Figure 13:

Hypothesis H5a: From 1951 to 1997, changes to various provisions of AIA A201 pertaining to the **Changes in the Work** have had an impact on the role of the Architect during the construction phase of a project. (Question 13a renumbered to Question 36 for analysis)

H5a0: From 1951 to 1997, changes to various provisions pertaining to the AIA A201 **Changes in the Work** provision have had no effect on the role of the Architect during the construction phase of a project.

H5aA: From 1951 to 1997, changes to various provisions pertaining to the AIA A201 **Changes in the Work** provision have had an effect of less responsibility on the role of the Architect during the construction phase of a project.

Test Method: Chi-Square Test

Test Results: For the Chi-Square test, the observed p-value is equal to 0.001, which is less than 0.05 (See Appendix D5, all Chi-Square Test results on page 16 of 17). Hence, the null hypothesis (*H1a0*) is rejected in favor of the alternative hypothesis (*H1aA*). Also, there exists a Chi-Square frequency distribution of 19 respondents scored 'no effect', 3 respondents for 'more responsibility', and 26 respondents for 'less responsibility'. Therefore, the dominant cell of responses (26 of 48) selected 'less responsibility'. (See Appendix D5, page 13 of 17, Question 36).

Conclusion: From 1951 to 1997, changes to various provisions pertaining to the **Changes in the Work** provision have resulted in the Architect assuming less responsibility during the construction phase of a project, which is reflected in the descriptive results shown in Figure 13.

A description of the responses to Question 13B is captured in the below figure, Figure 14.

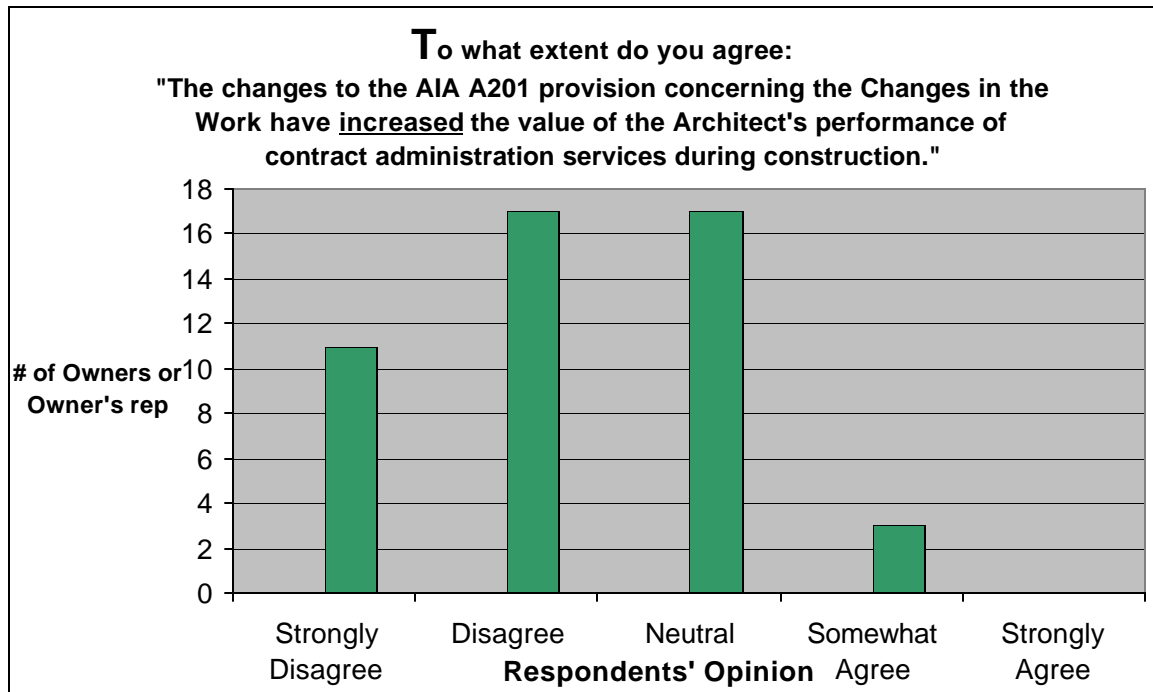


Figure 14:

Hypothesis H5b: Changes to the AIA A201 provision concerning the **Changes in the Work** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project. (Question 13b renumbered to Question 37 for analysis)

H5b0: Changes to the AIA A201 provision concerning the **Changes in the Work** have increased the value of the Architect's performance of contract administration services during the construction phase of a project. The mean score for the respondent's opinion on the increased value of the Architect's performance due to changes to the AIA A201 **Changes in the Work** provision on the of contract administration services during the construction phase of a project is *equal or greater than* the neutral value of 3. (In other words, a respondent's opinion is neutral or skewed towards 'disagrees' with the hypothesis.)

H5bA: Changes to the AIA A201 provision concerning the **Changes in the Work** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project. The mean score for the respondent's opinion on the increased value of the Architect's performance due to changes to the AIA A201 **Changes in the Work** provision on the of contract administration services during the construction phase of a project is *less than* the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'strongly agree' and 'somewhat agree'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.001, which is less than the universally accepted value of 0.05, and a mean difference of 0.75 (See Appendix D5, page 17 of 17, Question 37). Hence, it is concluded that the mean score for the respondent's opinion on the substantial effect of the **Changes in the Work** provision on the construction process and contract administration is greater than the neutral value of 3. The mean for Question 37 is 3.7500 (See Appendix D5, page 17 of 17). Therefore, the null hypothesis (*H1b0*) is accepted. The opinions of the respondents are skewed towards 'disagree.'

Conclusion: Changes to the AIA A201 provision concerning the **Changes in the Work** have not increased the value of the Architect's performance of contract administration services during the construction phase of a project, which is reflected in the descriptive results shown in Figure 14.

A description of the responses to Question 13C is captured in the below figure, Figure 15.

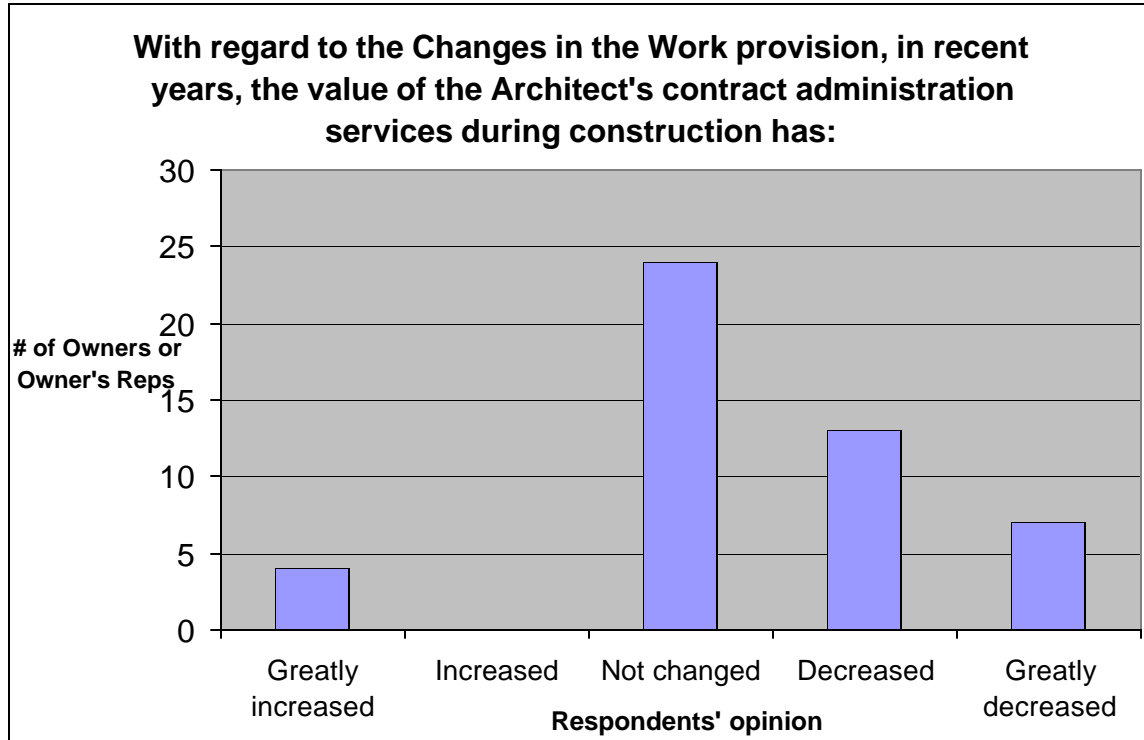


Figure 15:

Hypothesis H5c: With regard to the **Changes in the Work** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has decreased in recent years. (Question 13c renumbered to Question 38 for analysis)

H4c0: With regard to the **Changes in the Work** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has increased in recent years. The mean score for the respondent's opinion that the value of the Architect's contract administration services during construction has decreased in recent years is *equal or greater than* the neutral value of 3. (In other words, the respondent is skewed towards the direction of 'not changed', 'decreased', or 'greatly decreased'.)

H4cA: With regard to the **Changes in the Work** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction has decreased in recent years. The mean score for the respondent's opinion that the value of the Architect's contract administration services during construction has decreased in recent years is *less than* the neutral value of 3. (In other words, the opinion of the respondent is skewed towards the direction of 'greatly increased' and 'increased'.)

Test Method: Single Sample T-test

Test Results: There is a p-value of 0.001, which is less than the universally accepted value of 0.05, and a mean difference of 0.48 (See Appendix D5, page 17 of 17, Question 38). Hence, it is concluded that the mean score for the respondent's opinion on the substantial effect of the **Changes in the Work** provision on the construction process and contract administration is greater than the neutral value of 3. The mean for Question 38 is 3.47917 (See Appendix D5, page 17 of 17). Therefore, the null hypothesis (*H1b0*) is accepted. The opinions of the respondents are skewed towards 'decreased.'

Conclusion: With regard to the **Changes in the Work** provision, Owners or Owner's Representatives perceive the value of the Architect's contract administration services during construction have decreased in recent years, which is reflected in the descriptive results shown in Figure 15.

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