KING FAHD UNIVERSITY of EROLEUM & MINERTALS

Collage of Environmental Design

Construction Engineering & Management

CEM 520

TERM PROJECT:

CONSTRUCTION CLAIMS IN RESUDENTIOAL HOUSES
IN SAUDI ARABIA

Submitted to:

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Done by

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Abstract:

This thesis discusses the main types and causes of construction claims in residential houses in Saudi Arabia. A survey of 20 contractor, 19 consultants and 5 governmental offices (related to claims settlement). From the eastern province was under taken. The survey include different question asking for the frequency of different types of claims, the causes of this claims, and the degree of importance of each cause of claims. They are 20 different causes of claims. These causes are ranked according to the importance index that measures their level of importance. Ranking was down individually for contractors, consultants and related government offices, and a combination of all respondents. A computer statistical package (SAS) is used to analyze the data.

Contractors, consultants and related government offices generally agree on the ranking on importance of causes of the claims. It is concluded that delay in payments, defective contract documents, poor planning and bad quality of work are the main causes of claims. Also, it is noted that consultants give the most consistence responses, followed by contractor and then related government offices.

1.0 Introduction:

Building construction involves many parties. These parties work together to provide a construction products that served others needs. Each parities has different duties and responsibilities to perform. Since a lot of contractual relationships are created between parties, a misunderstanding of parties' reliabilities may lead to construction claims.

Construction claims in this thesis are defined as request, demand, application for payment or notification of entitlement to which the contractor, rightly or wrongly at that stage, considers himself entitled and in respect of which agreement as not yet being reach. Claims usually exist during most projects, but in recent years, they have become more frequent and severe.

Claims are the administrative process, which such correction is made. In this right, it becomes apparent that claims should be expected on all projects of any magnitude. There are generally three stages in the resolution of a disagreement: disputes, protests and claims. The main objective of this research is to undertake a compressive analysis of construction claims particularly of residential houses in Saudi Arabia.

1.1 Research Methodology:

Step1: Identification of causes.

Step2: Data is gathered data through site visits, interviews, and discussions with owners, consultants, contractors and other involved in construction.

Step 3: From the preliminary interview a questionnaire is formulated.

Step4: The questionnaire is distributed to consultants, contractors, and governments offices related to the problem.

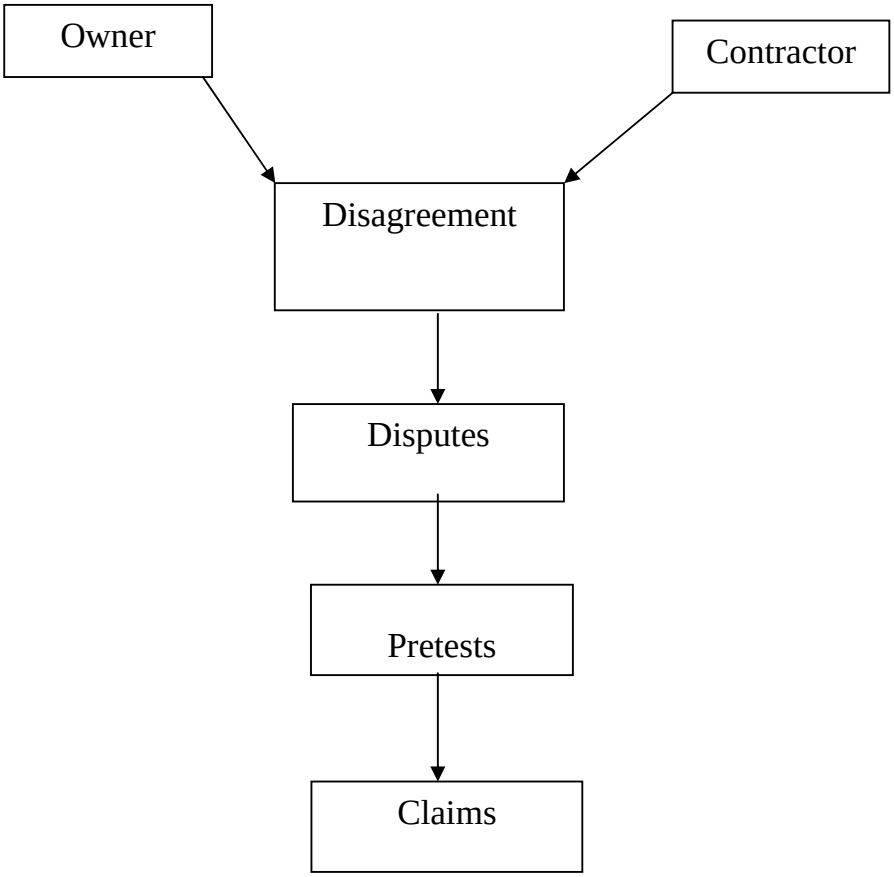
Step5: Data gathered from questionnaire is analyzed statistically.

Step6: Recommendations based on analysis of the results.

1.2 Scope and Limitations:

This research is limited to residential construction protects in the private sector only. This study will be also restricted to lump-sum contractor in the Eastern Province of Saudi Arabia.

1.3 Stages of Construction claims:



2.1 Types of Claims:

Construction claims in residential houses arising during their construction in the Eastern Province fall into eight categories. These types will be as follows:

1. Changes of claims.
2. Delay claims.
3. Extra work claims.
4. Contractual claims.
5. Deference in pricing and measurement claims.

6. Different site condition claims
7. Acceleration claims
8. Damage claims.

2.2 Causes of Claims:

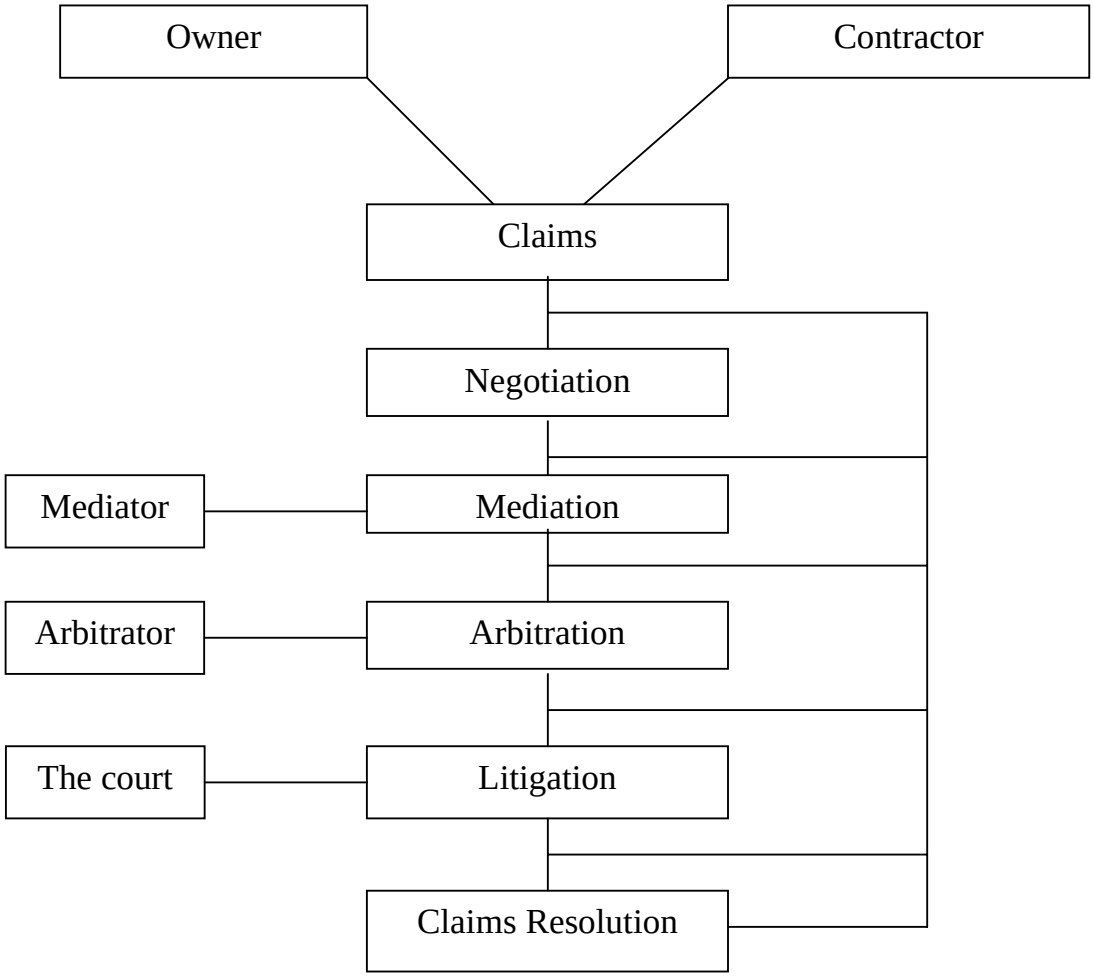
From a literature review and many interviews between the researcher and expert contractors and consultants, twenty-nine factors that cause claims were founded. These factors are combined into five major areas. These area as follows:

1. Poor planning
2. Errors or incomplete documentation.
3. Scheduling and estimating errors.
4. Execution deficiencies.
5. The building construction environment.

2.3 Methods of Claims Resolution:

When the contractor discovers the problem, he should tray to eliminate or avoid it. If he cannot do so, then he should write to a letter to the owner to make a formal claim. This is the first step in claim procedure. The problem is approached during regular meeting s, or a special meeting may be arranged to settle or discuss this dispute. If all that did not succeed, then mediation could be friendly way for settling the claim. Otherwise, arbitration

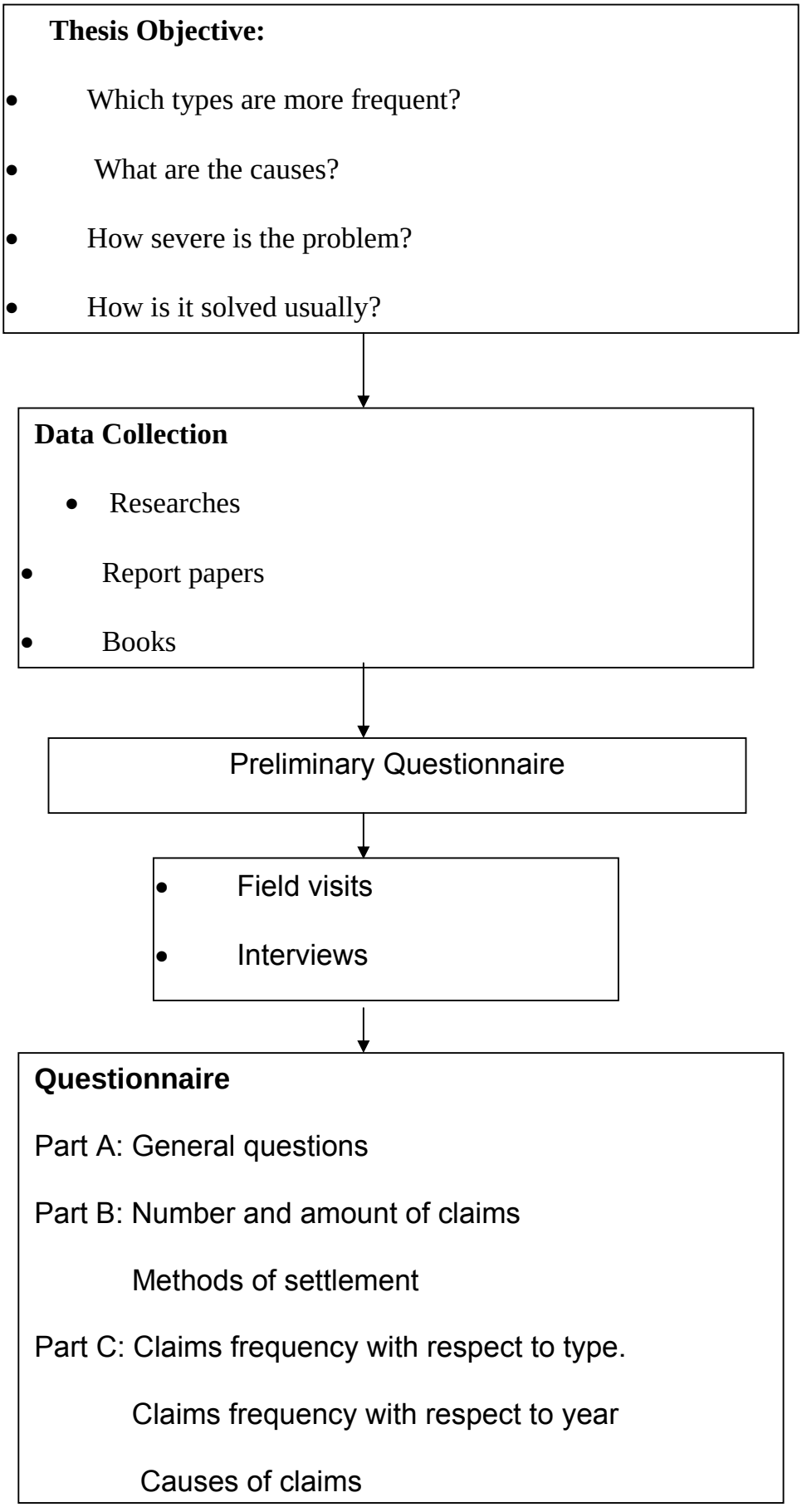
or litigation could be other ways to solve the claims. These methods could be as under:



3.0 The Survey:

The objective of this research is to find which causes of claims are important and which of claims are more frequent residential housing in the Eastern Province of Saudi Arabia. Therefore, this section includes the research methodology and the sampling techniques used to measure the importance of the major causes of claims and frequency of claims.

3.1 Questionnaire Design Methodology:



3.2 Questionnaire Design:

This was undertaken in two stages. The first stage consists of a comprehensive study of all types of construction claims and literature of search focus on the identification of causes. This stage resulted in preliminary questionnaire The second stage include filed visits and interviews. This stage focused on data analysis and identification of the most important causes of claims and the most frequent types of claims in the single –family residential housing projects.

There are three main parts in the questionnaire and cover page (see attached). Part " A" includes general information questions including annual volume, specialization, experience and nationality of company. Part " B" measures the frequency and severity of construction claims for each respondent and how they resolve them.

Part" C" concern the types and causes of the claims in single-family residential housing projects.

4.0 Data Analysis and Results:

Data collected from questionnaire was analyzed statistically by using computer program (SAS).

4.1 Statistical Methods:

The different methods used for calculating and presenting the survey results are as follows:

1. Tabulation and Cross Tabulation
2. Statistical Techniques
3. Ranking
4. Correlation

4.2 Statistical Techniques:

Question III in part " C" consists of 29 causes of claims. Statistical techniques analyzed here as follows:

- **The weight Mean**

The mean, obtained by adding together all values in distribution and dividing by the number of them, is more precisely known as the arithmetic mean.

$X = \sum Xh \;\; Xh$

Where:

X = The weighted mean

Xh= h , h= 1,2,3,4,5.

Wh = Nh/N

Nh= Number of responses for h.

N = Total number of responses.

- **Standard Deviation**

This measure takes into account the size of every values in the distribution and is usable for further arithmetical processing and in many statistical calculation.

$$Sx = \sqrt{\sum Wh^2 \quad Sh^2}$$

Where:

Sx = Standard Deviation

Sh^2 = (X hi - Xh) ^2

- **The standard Error of mean**

The standard deviation is used to describe the deviation of sample mean around their population mean

$$Sx (X) = Sx / \sqrt{N}$$

- **The confidence Interval**

The fact that samples usually are not perfect reflection of the population from which they were drawn, means that the researcher is never sure how close the sample's value is to the population's value. The confidence coefficient used in this thesis is 95% unless otherwise mentioned.

95% Confidence Interval = X + 1.96 Sx (X)

- **Coefficient of Variation**

Coefficient of variation measures the precision of the estimator. It shows how the

5.0 Major Findings:

The results in part “B” of the questionnaire shows there are a lot of claims in the residential projects. The result shows that for each contractor, there are 37 claims on the yearly on an average and the consultant are involved in a settlement of more than 30 claims annually. The amount of claims in term of money for both groups compared to the total project costs in average very between 9 and 16 percent. The means of settlement arrived at most frequent is negotiation. It accounted for 7% of the cases. From the contractor ‘s point of view, negotiation was used more than used more than 80 percent of the time. Arbitration was used 20 percent of the time and mediation was utilized in 13 percent of the cases. Parties resorted in litigation for only 10% of the cases. All these data seem plausible because most people do not like to go to court because it is a waste of the time and money.

The results of Part “B” in the Questionnaire:

5.1 Result of part " B":

Q#	Title	The average answers by		
		Contractors	Consultants	Both
Q.1	No. of claims annually	37	30	33
Q.2	Methods of settlement			
	a. Negotiation %	80.25	34.42	57.92
	b. Mediation %	6.4	19.63	12.85
	c. Arbitration %	11	28.53	19.54
	d. Litigation %	2.35	17.42	9.69
	Total	**100**	**100**	**100**
Q.3	The ratio of claims amount to the correct amount	6-10%	11-20%	9-16%

5.2 Results of part "C":

Part C consists of three types. Question I asks for the frequency of each types of claim by ranking. The results are as follows:

1. Change claims
2. Delay of claims
3. Extra work claims
4. Contractual claims
5. Difference in pricing claims.
6. Difference site conditions claims
7. Acceleration

8. Damage claims

It was found that the first four types are the most frequent ones and that the last four types occur infrequently.

The results from Question II in part " C" shows that there is an increase in the frequency of claims as time passes. The year of 1406 H (1985 – 1986) showed the highest rank which indicates a lot of claims. The result may indicate that the economic impact affected claims frequency. Also, it seems logical to conclude that 10 years ago, claims were less frequent due to the high profit of the contract and also due to the lack if knowledge on the part of the contractors at that time.

Questions III in the part "C" consist of the 39 cause of claims. Those causes have been divided into five areas. The results of those causes will be mentioned as follows:

1. Poor planning
2. Errors or incomplete documentation
3. Scheduling and estimating errors
4. Execution deficiencies

5.3 <u>Conclusion:</u>

Based of the results of this research, following conclusions can be drawn:

1. Delays in payment are the main important cause of claims.

2. The documents of the contracts usually are not well written which are results on a lot of claims.

3. Owners usually try to deduct from the last payment and the reason give is that the quality of work is not good. This may result of claims.

4. Both contractor and owner don't execute good planning before starting project. So, a lot of change orders are created to adjust it.

5. One of indirect cause is that there is no control of construction market; anyone could become a contractor. The decreasing the quality of work results of increasing the claims.

5.4 General Recommendation:

1. Number of payments should be increase to be easier to be paid by the owner.

2. If there is a financial institution that is funding the project like the REDF, the contractor is recommended to have direct contact with it .The contractor can collect his money directly from institution after he gets approval from the owner.

3. It is recommended to have a standard contract that is flexible. It should be prepare carefully to describe the rights and responsibilities of contractor and owner. It should recognize that

if the scope of work is changed, there must be an equitable change in contract price or time, or both.

4. The document should be fair, contain responsible requirements, and clear definitions of each part the job. The contract's language should be clear, correct, adequate and concise. The scope of the project should be accurately and completely defined. The contractor should request the owner to write the change of order instead of giving oral change.

5. The owner is recommended to use the experience of consultant before signing the contract.

6. Coordination of design documents is extremely important. Written specification should be reviewed to avoid ambiguities and conflicts between architectural and engineering drawings.

7. The contractor should take care of his work quality by getting skilled labor and using good management techniques.

8. The government should establish a set of procedure to control the quality of construction work. Also, it should have methods of licensing contractors to make it more difficult to be a qualified contractor.

9. The best solution to claims lies in the establishment of partnership between the owner and contractor. Each party

should tray to solve the problem from the first moment they arise.

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