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Overhead Costs in Building Construction in Saudi Arabia

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Introduction:

Cost estimation is essential for the construction industry because of its direct impact on the financial performance of the organization. One general definition of the overhead (OH) costs is those charges that cannot be attributed exclusively to a single product or services. OH costs are extremely important in construction estimation because they can be easily overlooked. Moreover, OH costs have forced some contractors out of business because OH costs contribute to a significant portion of total construction costs. In the same way, total OH costs vary from 8% to 30% of the sum of materials, labor, and equipment costs. So, it is clearly that OH cost should not be under estimated in order to survive in a competitive market.

It is extremely important for the Saudi organizations to reevaluate their OH costs for many reasons. One main reason is that OH costs rise continuously and never go down on their own, producing even higher production costs. Not only that but global environments are becoming competitive, profit margins are declining and market shares are shrinking. All these critical factors and others are pushing Saudi organizations toward restructuring their OH costs systems.

The objective of this report is to evaluate the overhead costs practices of construction companies in Saudi Arabia. Several aspects will be examined that include contractor awareness, percentage of company OH costs to annual construction volume and methods of allocating company OH costs.

Literature Review:

As it is well known in construction management that there are two types of OH costs:

1. Company OH costs
2. Project OH costs

However, the main concern of the report is the company overhead. So, company overhead will be emphasized in the literature review. On the other hand, project OH costs will be described shortly.

- ***Project OH costs:***

Project OH cost is also called job site overhead or general condition are It is the cost specific to a project, but not specific to a trade or work item. Project OH costs comprise the contractor's expenses in managing the project at the job site. Unlike company OH costs, project OH costs can be estimated with fair accuracy, which necessitates that contractors carefully examine contract conditions to properly cover project OH costs. Major project OH costs include surety bonds, project insurance, financing cost, supervision cost, temporary constructions, repair works, equipment costs and miscellaneous costs.

- ***Company OH costs:***

Company OH cost ,is also called general and administrative OH, includes all costs incurred by the construction firm in maintaining the firm in business and supporting the production process, but are not directly related to a specific project. Company OH costs differ significantly from time to time but vary from 8 to 15% of the total construction volume. Company OH is one of the main reasons why so many contractors are unable to grasp a profit, or even survive in the market. The best way in handling the company OH costs is to directly charge each project the actual expenses that will be incurred, provided an accurate estimation is reachable.

The most favorable OH level is that allows the firm to accomplish its strategic goals at the lowest possible general expense. However, there are some reasons behind the difficulties of measuring the effectiveness of OH costs:

1. OH costs are created by indirect activities which are not clearly defined.
2. All indirect activities are considered essential for the survival of the company and thus any reduction in activity level or quality will render the affected department inoperable.
3. The costs of indirect activities are never accurately known.

4. Cutting OH costs usually affects executives first, which sometimes generates a defensive mechanism among top management and may shift the blame for excess OH costs to misleading causes.

5. Some companies lack clear long term plans regarding business orientation, which causes confusion regarding OH spending priorities.

There are, nevertheless, some signs that indicate that OH costs are reaching unacceptable levels. The first sign is when a contractor finds it is difficult to realize profit although estimated direct costs are close to actual costs according to cost control reports or when competitors' prices are unrealistically low.

Research Methodology:

Since this report is concerned with the Saudi contractors' perceptions and practices regarding OH cost, it is felt that surveying existing contractors in the Saudi market at is an appropriate approach to achieve the research objectives. For this purpose, a 3-modular questionnaire was developed. Factors related to the subject were divided into three main categories. (1) General information about the participating contractor, (2) OH in general, and (3) Company OH costs. This classification was designed to better address the research questions.

- **Sample characteristics:**

The population of this study is all building contractors classified by Ministry of Public Works and Housing (MPWH) in the first three grades for Saudi contractors and in the first five grades for foreign contractors who, according to MPWH can bid for projects of SR50 million. The total number of those contractors is 230. Based on the population, a sample was designed to reflect a confidence level of 95%.

- **Interview session:**

It was found that some large contractors resisted answering the questionnaire alone, so, interviews were essential. Some contractors needed sometimes to go back to their files to extract information. In such cases, an appointment was set to come back and go through the answers with the contractor to make sure that the answers were clear and complete. In other instances, contractor representatives just checked

some files and gave immediate answers, thus giving reliability to them as they came from documented sources. The average time needed to complete one questionnaire was 2 hours if information was ready. Total number of collected questionnaires was 61.

Data Analysis and Discussion:

- **What is an OH Cost:**

The main purpose of this question is to examine the level of contractors' awareness regarding the basic meaning of the OH cost. Results show that 64 % of the sample did not properly define OH costs and mentioned examples of OH costs. Another 23% of the sample defined OH cost with a reasonably accurate definition by stating that OH cost is not part of the actual construction production cost but is an indirect cost. Only 13 % of the sample has properly define the OH cost, which can be sensed in their definition especially by stating that OH cost is an indirect construction cost which cannot be attributed to a single cause (project or activity) and also by stating that there are two types of OH cost which are company and project OH costs.

Results also indicate that even large contractors do not have a unified or even proper understanding of the term OH costs. This indicates that the awareness of OH costs should be enhanced in order to reach an acceptable level where overall construction costs can be reduced and the overall competitiveness can be increased.

- **Types of OH Costs:**

It is clearly shown in the results that majority with about 87% differentiate company OH and project OH costs. However, the remaining percentage considers all OH costs alike.

- **Percentage of OH costs:**

It was stated in the literature the total OH costs do not usually exceed 15% of the annual construction volume in the United States. However, the results show that only 48% of the contractors have 15% OH costs or less. The remaining 52% have a

higher percentage, indicating that OH costs present a serious challenge. The calculated overall percentage is 16.83.

- **Contractors' Perception Regarding OH Costs:**

The majority of contractors put in plain words the following:

- Current rate of OH costs is not acceptable.
- Uncontrolled OH costs can badly affect the performance.
- OH costs were not important in the past.
- OH costs can be monitored and controlled.

These results indicate that the majority of contractors are not satisfied with OH cost and they are facing problems in managing them. This should encourage contractors to investigate the issue in an effort to reduce the negative effect of OH cost.

- **What is a Company OH Cost:**

Contractors were asked to answer an open-ended question regarding the definition of the company OH costs. Moreover, 60 answers were observed. The answers can be grouped as:

- 43% of the participants defined OH cost as the permanent set-up costs that are needed for all previous, on-going and future projects. Examples are head office expenses and taxes.
- 57% participants defined OH cost by directly mentioning examples of company OH costs such as head office expenses, salaries, and camp costs.

The answers reveal that 43% of the sample successfully defined company OH costs whereas the remaining 57% jumped directly to examples of company OH costs

without really defining them. Both parties did not clearly state that a company OH cost cannot be solely caused by a single project.

- **Ratio of Company OH Cost to Project Direct Cost:**

Results for this question are shown in Table 1. The results show that while 15.1% of contractors do not calculate the ratio, only 26.2% of the contractors have 10% (or less) of their project bid value as costs initiated by company expenses. The remaining 58.7% add more than 10% of the project direct costs as a company OH cost. In fact, 14.8% of the contractors surveyed reported that their ratio is 16-20% and 6.6% have 20 or above of their bid value as company OH costs, which is very high level. The overall percentage is 12.9.

Table 1

Ratio of OH costs to Project Direct Cost

Ratio of Co. OH to direct cost	Freq	Percent	Cum. Freq.	Cum. Percent
00-05	00	00	00	00
06-10	16	26.2	16	26.2
11-15	23	37.3	39	63.5
16-20	09	14.8	48	78.3
Above 20	04	06.6	52	84.9
Not Calculated	09	15.1	61	100.0

- **Ratio of Company OH Cost to Annual Construction Volume:**

The ratio of company OH costs to annual construction volume differs greatly, but for large contractors it ranges from 8 to 15% (Table 2). Results show that 54.1% of the respondent have 15% (or less) of their annual construction volume as a company OH. The remaining contractors (45.9%) have more than 15% of their annual construction volume as company OH. The overall ratio is 14.3%.

Table 2

Ratio of OH costs to Annual Construction Volume

Ratio of Co. OH to construction volume	Freq.	Percent	Cum. Freq.	Cum. Percent
00-05	02	03.3	02	03.3
06-10	10	16.4	12	19.7
11-15	21	34.4	33	54.1
16-20	25	41.0	58	95.1
Above 20	03	04.9	61	100.0
Not calculated	00	00	61	100.0

- **Changes in Company OH Costs:**

Results on whether contractors believe that company OH has increased or decreased lately are shown in Table 3. It is clear that the majority of contractors think that company OH costs have increased during the past years.

Table 3

Changes in Company OH Costs

Trend	Freq.	Percent	Cum. Freq.	Cum. Percent
Increased	47	77.0	47	77.0
Decreased	08	13.2	55	90.2
Didn't change	06	09.8	61	100.0

- **Reasons for Increased Company OH Costs:**

Knowing the major sources of high company OH costs helps in concentrating efforts towards specific causes. Seven potential causes were identified from the literature and a pilot study, and evaluated as shown in Table 4. In evaluating these factors it should be noted that some causes of increased company OH costs are inter-related,

which makes it difficult to evaluate them individually. Looking at results, causes of increased company OH costs can be arranged in their order of effectiveness as follows:

1. ***Delayed payments:*** This factor affects company OH in two ways. First, it forces a contractor to look for external financial support which means additional company OH costs. Second, delayed payments affect the bid/no bid decision. When contractors decide not to bid because of delayed payments, the rate and the effect of company OH become larger even if its magnitude remains the same. Its effect becomes damaging because the no bid decision implies fewer projects which means company OH costs are not distributed among sufficient projects.
2. ***Lack of new project:*** If there are not enough new projects, then the level of competition among contractors becomes seriously sharp, which not only reduces profit margin but also makes contractors delay the issue of recovering company OH costs hoping for another chance to recover them. Again, this cause may not lead to a direct increase in company OH costs but it makes existing OH costs more damaging to the company. Nevertheless, lack of new projects may directly lead to an increase in company OH costs because lack of projects strongly affects the decision of down-sizing and its accompanied costs. One important example in this situation is the financial loss accompanying a contractor's decision to liquidate his assets such as equipment, camps, or work shops.
3. ***Cost inflation:*** Contractors think that inflation is the third cause for increased company OH costs. Company OH consumes many different types of commodities and services which in general transfers overall inflation rate to company expenses.
4. ***Government regulation:*** Government regulations came as the fourth reason for increased company OH costs. Increased costs to recruit manpower from abroad

and work legal in the Kingdom have affected company OH costs as many contractors consider such costs a company OH cost.

5. ***Firm's growth:*** Company's strategy regarding expanding to new working horizons or even shrinking to a smaller size company has significant accompanying costs. Expanding construction activities may involve recruiting more manpower, expanding head office, buying more equipment, or negotiating a loan. On the other hand, down-sizing involves getting rid of surplus manpower, reducing or changing head office, or liquidating equipment and batching plants which usually takes place in bad times leading to high company OH costs.
6. ***Client related requirements:*** It is true that most company OH costs are not related directly to project requirements and thus are not related to client requirements. However, there are instances where a project needs certain equipment or other costly items which cannot be exclusively recovered by including their costs in the project at hand. Such costs are treated as a company OH cost. The result of the survey regarding this point sets it in the sixth position as a reason for increased company OH costs.
7. ***Increased spending on marketing:*** It is normal for construction firms to look for new clients because only a limited number of clients will be continuously involved in building projects. Also, during recession many contractors will put their full efforts into finding new markets which involves extra spending. Increased spending on marketing came in the seventh and last place among factors leading to increased company OH costs.
8. ***Wrong management decisions:*** Only 19 contractors (31% of the sample) considered their inter-organization mistakes a source for increased company OH costs. Wide spectrums of examples were mentioned here, such as inefficiency in managing company head office and improperly expanding business.

Table 4

Reasons for Increased Company OH Costs

Reason for Increased Co. OH costs	5	4	3	2	1	Total	Index %	Rank
Lack of new projects (recession)	27 44%	15 25%	06 10%	07 11%	11 10%	61 100%	76.4	2
Cost inflation	14 23%	19 32%	13 21%	10 16%	05 08%	61 100%	68.8	3
Delayed payments	24 39%	18 30%	11 18%	06 10%	02 03%	61 100%	78.4	1
Government regulation	10 16%	19 31%	20 34%	05 08%	07 11%	61 100%	67.2	4
Increased marketing cost	17 28%	06 10%	17 28%	11 18%	10 16%	61 100%	63.0	7
Client related reasons	19 31%	10 16%	12 20%	05 08%	15 25%	61 100%	64.2	6
Firm's growth	23 37%	04 07%	16 26%	03 05%	15 25%	61 100%	65.6	5
Other (internal mistakes)	00 00%	08 42%	06 32%	05 26%	00 00%	19 100%	N/A	N/A

- **Distribution of Company OH Cost:**

Company OH costs have many possible components that can be considered. The percentages of the most commonly included items were investigated. The importance of this analysis is that it gives a chance to know which company OH cost items consume most of the company expenses and as a result identifies where to concentrate efforts to reduce company OH costs. Seven major cost categories were identified from the construction literature and an eighth open category was also added for a possible additional cost category. Results are shown in Table 5. Survey results show factors affecting company OH costs can be arranged as follows:

1. **Automobile and equipment costs** are the highest company OH cost category and they account for 11% and above of the total company OH costs for the

overwhelming majority of the surveyed contractors. It must be noted, however, that many large contractors prefer to consider equipment cost a direct project cost.

2. **Head office expenses** are the second highest category and constitute 11% and above of total company OH costs for the majority of the contractors. Head office expenses include (but are not limited to) office rental, utilities, furniture, stationary items, fee for technical or legal consultation which is of a general nature.

3. **Labor related costs** are the third highest cost category. However, it must be noted that labor costs in this case do not include labor wages but mean labor recruitment, health cost, residence, work permit, and other similar costs.

4. **Financing costs** can be a company OH cost or a project OH cost. When needed by the company as a whole or when needed by many projects and cannot be specifically used by a project, then it is considered company OH. This type of cost came in the fourth place among types of company OH costs. Results show that 28 contractors representing 46% of the sample use external financial support. The cost of such support ranges from 11 to 20% of company OH costs for the majority of those contractors who use external financing.

5. **Head office staff expenses** are in fifth place with the majority of the responding contractors saying they account for 10% or less of the total company OH costs.

6. **Insurance costs** came in sixth place, providing around 5% of the total company OH expenses for most of the contractors.

7. **Marketing costs** which account for less than 5% of company OH came in the seventh and last position among company OH categories.

Table 5

Distribution of Company OH Cost

Distribution of Co. OH cost	0-5%	6-10%	11-15%	16-20%	Over 20%	Total	Index %	Rank
A) Head office staff	08 13%	34 56%	03 05%	11 18%	05 08%	61 100 %	50.4	5
Travel expenses	38 63%	15 24%	08 13%	00 00%	00 00%	61 100 %	30.2	6
Auto. &Eq. Expenses	00 00%	10 16%	22 37%	13 21%	16 26%	61 100%	71.4	1
Head office expenses	01 02%	08 13%	23 38%	21 34%	08 13%	61 100%	68.8	2
Insurance & taxes	42 68%	14 23%	04 07%	01 02%	00 00%	61 100%	28.2	7
Labor health, travel, recruitment	00 00%	05 08%	37 61%	16 26%	03 05%	61 100%	65.6	3
Marketing	47 77%	14 23%	00 00%	00 00%	00 00%	61 100 %	24.6	8
Financing cost	00 00%	05 18%	12 43%	11 39%	00 00%	28 00%	64.2	4
Other	00	00	00	00	00	00	00	N/A

- **Company OH Allocation Base:**

In Table 6, the allocation base is investigated. There are at least seven possible bases that can be used to estimate the amount of company OH that has to be allocated to a project at hand. It was reported that total direct costs (excluding project OH, contingency and profit) are used too often as an allocation base, followed by labor costs as a second base in use in the United States. The study results reveal that total direct costs including project OH is the most frequently used base (38%). In second place comes the project duration (23%) and in the third are

the direct costs for material, labor and equipment but excluding project OH (21%). followed by material and labor costs (16%).

Table 6
Company OH Allocation Base

Co. OH Allocation base	Freq	Percent	Cum Freq.	Cum. Percent
Project duration	14	23	14	23
Number of projects	01	02	15	25
Project bid value	00	00	15	25
Material cost	00	00	15	25
Material & labor cost	10	16	25	41
Material, labor & eq. Cost	13	21	38	62
Direct cost including proj. OH	23	38	61	100
Fixed amount is added	00	00	61	100
Company OH is not included	00	00	61	100
Other	00	00	61	100

- **Company Factors Affecting the Magnitude of Company OH Allocated to Projects:**

In many instances, decision-makers in contracting firms do not adhere to figures coming from project estimators but change company OH rates to higher or lower values. Contractors may choose to do so because of the nature of the contract, the size and complexity of the project, the contractor's need for work, financial causes, the contractor's experience with the client, the degree to which subcontractors services are needed, or the number of contractors competing to win the project, that may not be known at bidding time. These factors are investigated and results are listed in Table 7. Survey results show factors affecting the magnitude of company OH allocated to projects can be arranged as follows:

1. Contractor need for work: it is understood that contractors tend to underestimate company OH when they do not have the freedom to properly include it. Having this factor in the first place indicates that local practice is in full agreement with this concept.

2. Type of contract: The type of contract, which formulates the relationship between clients and contractors, affects the allocation of company OH because it dictates the way contractors include their company OH costs. Also, different contracts have different conditions regarding OH costs in particular. However, most of the contracts used locally are lump sum contracts which do not interfere in the way contractors calculate their OH costs, yet it encourages contractors to minimize the amount of OH costs included in the bid.

3. Number of competitors: At all times, contractors study carefully the chances of winning a project in conjunction with the surrounding level of competitiveness. The higher the competition, the lower the amount of company OH allocated even if this means that company OH is not fully recovered in the short run. Having the number of competitors in third position among factors affecting the allocation of company OH emphasizes the importance of this factor.

4. Percentage of subcontracted work: Theoretically speaking, the percentage of subcontracted work should not affect the amount of company OH allocation because company OH costs are generated by the company and not by the project. However, results put this factor in the fourth place.

5. Contractor's cash availability: Contractor's cash availability as an internal matter affects the company OH allocation process because it is a scale as to how far a contractor can go in underestimating his company OH without facing serious financial consequences.

6. Project complexity, location and size: Company OH is not in direct relation with project characteristics. However, project complexity, location, and size tend to encourage contractors not to under-allocate company OH costs.

7. Payment schedule: Seemingly, there is no relation between company OH and payment schedule or payment expectations. In construction, however, payments interfere in every decision including OH allocation. Furthermore, payment schedule effect on the company OH allocation process can be understood from the contractor's financial strength point of view as explained earlier in this section.

8. Client's strictness in supervision: There is no direct relation between company OH and the degree of rigidity in client's supervision, which is also apparent from the survey results.

Table 7

Factors affecting the amount of company OH allocated to a particular project

Factors affecting Co. OH allocation	5	4	3	2	1	Total	Index %	Rank
Type of contract	22 37%	07 12%	11 18%	12 20%	08 13%	60 100%	67.6	2
Project complexity, location & size	01 02%	12 20%	19 32%	13 21%	15 25%	60 100%	50.4	6
Need for work	16 26%	22 36%	07 11%	11 20%	04 07%	60 100%	71.6	1
Payment schedule	00 00%	05 08%	16 27%	20 33%	19 32%	60 100%	42.4	7
Contractor's cash availability	05 08%	05 08%	23 38%	12 20%	15 26%	60 100%	51.0	5
Client's strictness in supervision	00 00%	03 05%	12 20%	21 35%	24 40%	60 100%	38.0	8

Percentage of subcontracted work	07 11%	11 18%	19 32%	16 26%	07 13%	60 100%	58.4	4
Number of competitors	12 20%	19 32%	13 22%	09 15%	07 11%	60 100%	66.6	3
OTHER.....	00	00	00	00	00	00	00	N/A

5 = Strongly agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly disagree

Conclusion:

Results of the survey show that average overhead cost in Saudi Arabia is slightly higher than the ratio reported in the literature. The ratio of company OH costs to project direct cost on the average is about 13%. The ratio of company OH costs to annual construction volume is 14.3%. Causes of increased company overhead costs include delayed payments, lack of new projects, cost of inflation and government regulations. Factors affecting company OH costs include the following: automobile and equipment costs, head-office expenses, labor related costs and financing costs. Factors affecting the amount of company OH loaded to a given project include: contractor need for work, type of contract, number of competitors, and percentage of subcontracted work. The majority of contractors apply a cost control plan for company OH costs. However, their cost control plans are instantaneous decision aimed at cutting company OH costs which came as a reaction to high OH rates. The unstable construction market makes it difficult for contractors to decide on the optimum level of OH costs that enables contractors to win and administer large projects and at the same time does not financially drain the company. There are new types of OH costs that were not previously known to Saudi contractors, such as insurance and financial costs that are project OH costs in general but can be considered company OH costs in many instances.

Recommendations

- Contractors need to be better informed about OH costs through short courses, seminars, professional and scientific societies. Contractors should be aware of the benefits of reduced company OH costs to their

organization and to the construction industry. Less OH means more efficient organization.

- Contractors should, practically speaking, plan to maintain optimal levels of company OH costs, thus reaching two objectives at the same time: to eliminate unneeded spending and to be able to secure or increase the firm's market share in accordance with its strategic objectives.
- Contractors are recommended to establish cost control plans to help reduce company OH costs. Such plans should contain cost objectives, implementation steps, monitoring, and corrective actions.
- Maintaining sound safety programs helps reduce insurance costs.
- Customer satisfaction helps in maintaining good reputation, which helps in obtaining loans and other financial services at lower costs.
- Applying the right combination of resources, which allows maximum utilization of company head office manpower.
- Contractors and project owners should try to resolve the problem of delayed payments in order to reduce financing costs.
- Contractors should implement cost control measures on supervision costs, equipment costs, temporary constructions, and financing costs as these items constitute the major project OH costs.
- Project owners should minimize OH related requirements in their contract documents so that project OH costs can be reduced. This would be of reciprocal benefit to project owners.